PURCHASING

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450 Actual Case Histories



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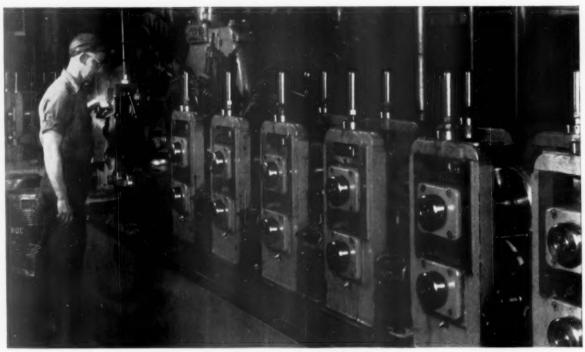
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"We've simplified our lubrication and cut our bearing replacements sharply"

At Arvin Industries' Seymour, Indiana, plant all general grease lubrication is now handled with just one lubricant – Texaco Multifak.



• FORMING SEAMLESS TUBING at Seymour, Indiana, plant of Arvin Industries—world's largest producer of automobile mufflers. Because of the outstanding job Texaco Multifak is doing here as a multi-purpose lubricant, two other Arvin plants are adopting its use.

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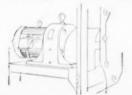
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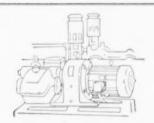


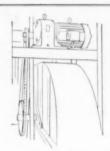
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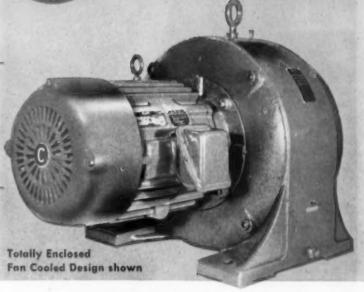
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B.F.Goodrich report:



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B. F. Goodrich improvements in rubber brought extra savings

Problem: Men working near that conveyor used to be in danger. Boxes riding the belt up to the next floor would slip and slide. Sometimes they would fall completely off the belt, crash to the floor, narrowly missing workers. One crash completely ruined a \$150 electrical fixture.



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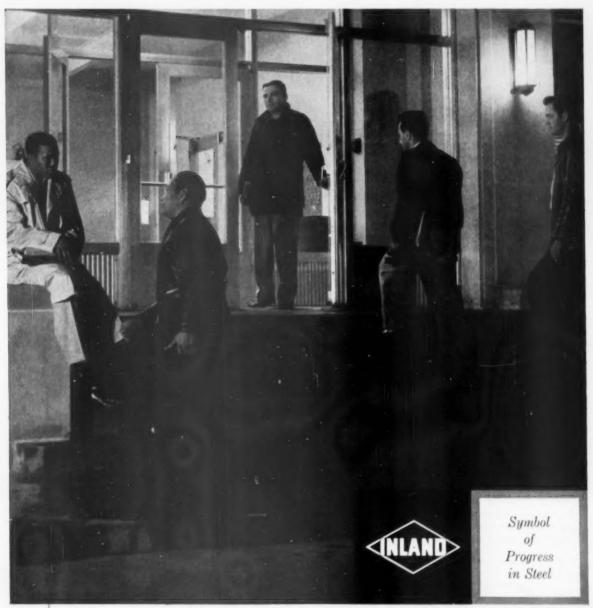
there are no rough knobs or pockets to catch dirt and debris. And unlike other package-handling belts, it can handle a mixture of light and heavy packages easily and efficiently.

Where to buy: Your B.F.Goodrich distributor has exact specifications on this new belt. And, as a factory-trained specialist in rubber products, he can answer your questions about all the rubber products B.F.Goodrich makes for industry. B.F.Goodrich Industrial Products Co., Dept. M-941, Akron 18, O.

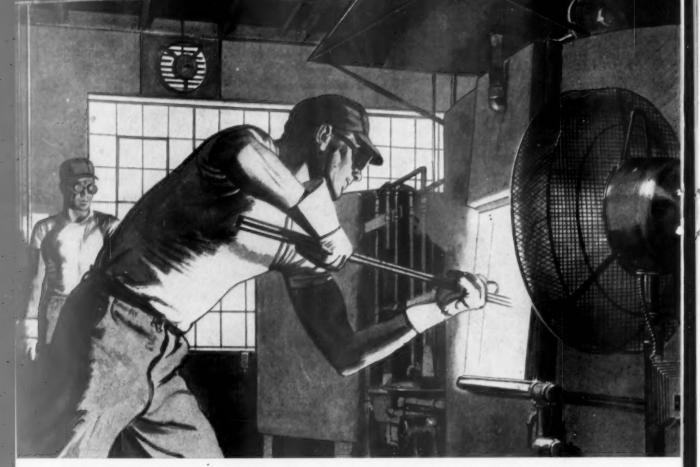
B.F.Goodrich

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You'd be surprised at the number of Inland people, like these men, who spend their free time studying chemistry, metallurgy, physics—adding scientific knowledge to their already solid practical backgrounds. Inland's broad training plan, with a wide variety of formal and informal courses, covers just about every phase of the industry. Typical are the Inland-Purdue University cooperative classes in which men from our mills take college level courses in subjects related to steelmaking at Inland expense. Good investment, we find. For the results are bound to show up in better Inland service—better Inland steels—to meet *your* specific requirements.



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Purchasing

Published for and read by the men who buy for American Industry

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NOT LOADED

5

HOT POSITION

DOW CORNING CORPORATION

Silicone News

ENGINEERS FOR DESIGN



Silicones Assure Top Performance Of All Mercury Outboard Motors

New evidence to the versatility of Dow Corning silicone compounds comes from Kiekhaefer Corp., Fond du Lac, Wisconsin, manufacturer of the "Mark 75," world's most powerful production outboard motor.

To help keep this and the other eleven new Mercury motors in top operating condition despite rugged service, Kiekhaefer coats several rubber, ceramic and metal parts in every motor with a paste-like silicone dielectric compound. Exceptionally resistant to heat, cold, oxidation and moisture, the silicone compound protects and preserves rubber, serves as a light lubricant, and helps prevent shorts in the electrical system. Since this Dow Corning silicone compound remains serviceable from -70 to 400 F, it stays in place to minimize maintenance and to assure long, trouble-free service.

Silastic Seals Help Make Glass Heat Exchangers Maintenance-Free

With superior resistance to heat and compression set, Silastic* - the Dow Corning silicone rubber - has helped Corning Glass Works to engineer low maintenance into their new Pyrex modular shell-and-tube heat exchanger.

Mass produced for off-the-shelf delivery, these glass heat exchangers are designed for processing corrosive and metal-sensitive liquids. Any number of standard sections can be combined into a single, efficient heat exchange unit. Maintenance is almost nil due to the glass construction and the efficiency of a Silastic seal between the shell and tube.

Here's how it works: a resilient Silastic gasket is put under pressure by tightening the flange bolts of the sections. Completely contained between the tubes and a retainer ring, the Silastic in turn, forces a Teflon "protector" sheet to form a permanent, leakproof seal against the tube ends. Resilience and positive pressure are maintained by the Silastic part despite expansion and contraction at operating temperatures as high as 375 F.

That's the kind of serviceability you can



expect from seals backed by these typical Silastic properties:

	Temperature range, F	-130	to	500	
	Tensile strength, psi	600	to	900	
	Elongation, %	150	to	300	
	Tear strength, lb/in	40	to	75	
0	Compression set, %, at 300 F	25	to	50	
	Hardness range, Durometer	20	to	80	
0	Weather, ozone and corona				
	resistance	E	xce	llent	
0,	. M. REG. U. S. PAT. OFF,		No.	125	



For the latest news of silicones and to learn how silicones can help solve your design problems, be sure to visit BOOTH 406 at the Design Engineering Show.

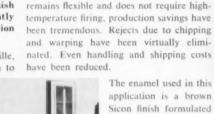
Heat Resistant Silicone Enamel Improves Heater, Cuts Costs mer complaint about loss in color, gloss

Paints and enamels made with Dow Corning Silicones not only solve the problem of keeping an attractive finish on hot metal surfaces, but frequently effect noteworthy savings in production costs as well. For example-

Five years ago, Temco, Inc., Nashville, Tenn., switched from a vitreous finish to

a silicone enamel for the upper grille of their gas-fired wall heaters.

The heater normally operates at 350 F, but a blocked flue can quickly boost this temperature to 500 F. Temco has used the silicone enamel on over 25,000 units without a single custo-

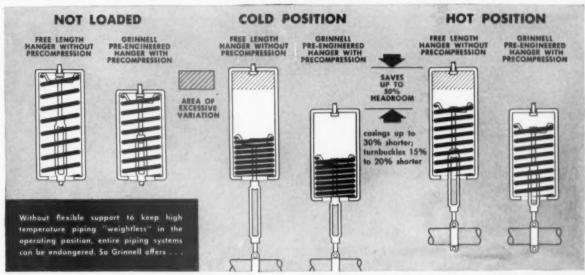


The enamel used in this application is a brown Sicon finish formulated with Dow Corning Silicones by Midland Industrial Finishes Company. A single coating is sprayed on the steel grille and baked 20 minutes at 350F. No. 126

Design Edition 32

DOW CORNING CO		- Dept.	8917
Please send me	124	125	126
NAME			
TITLE			
STREET			
COMPANY			
CITY	ZONE	STATE	

ATLANTA . BOSTON . CHICAGO . CLEVELAND . DALLAS . DETROIT . LOS ANGELES . NEW YORK . WASHINGTON, D. C. Canada: Dow Corning Silicones Ltd., Toronto; Great Britain: Midland Silicones Ltd., London; France: St. Gobain, Paris



Precompressed Hangers for Safer Support of Piping

Helical coil springs are widely used in hangers for flexible support of piping which moves up or down during thermal expansion. The A.S.A. code for pressure piping requires that variable spring hangers support at least a minimum of 75% of the pipe's weight for a pipe that rises (relaxing the spring) and no more than 125% of the pipe's weight for a pipe that lowers (compressing the spring) during operation.

Precompression patented Grinnell principle

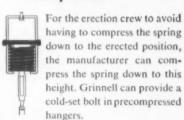
To guard against the spring's supporting force exceeding the limits of variation, Grinnell developed and patented a variable spring hanger design. The steel casing holds the spring permanently precompressed, at the threshold of the hanger's working load range. This prevents the spring decompressing into its area of excessive variation.

Pre-set is not a substitute

As a partial substitute for this patented precompression, some manufacturers insert a spacer between the top end of a free-length hanger casing and the spring to hold the spring's height temporarily within the working range during shipment and erection.

Another device requires the manufacturer to drill symmetrically opposite holes in the casing walls and insert a bolt to hold the spring's height within the working range. When these devices are removed from the hanger and discarded, the spring can decompress, resulting in high variability in supporting force,

Cold-setting a universal factory service



Less headroom required by Grinnell Hangers

Shorter hanger casings made possible by Grinnell's patented precompression, reduce bulk shipping weight and required headroom by eliminating undesirable height. Installation is simplified by this shorter casing and also by an integral load scale with load indicator.

Additional headroom is saved by a correspondingly shorter turnbuckle. These precompression advantages are available in short spring and double spring models as well as standard spring models.



Refinery piping supported safely, with ample flexibility but low headroom.

Available in 63 standard units

Grinnell Variable Spring Hangers are available in 21 sizes each of short, standard and double spring models... for maximum travel of 1¼, 2½ and 5 inches respectively within working load ranges. Load capacities extend from 43 lbs to 30,550 lbs. The maximum variation in the standard size per ½-inch deflection is 10½% of rated capacity; inversely proportional in short spring and double spring models.

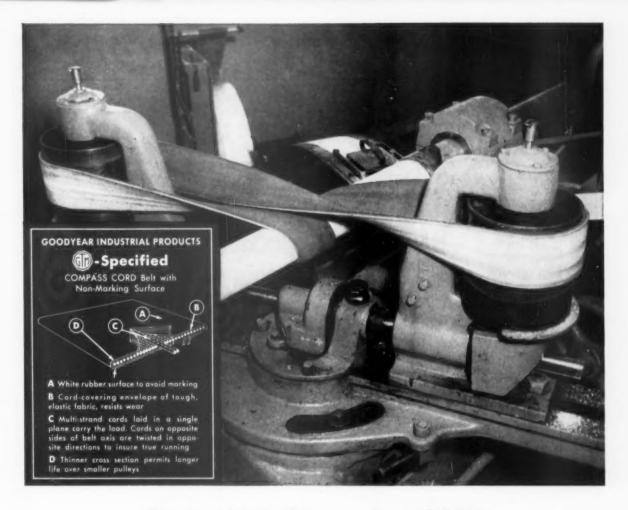
For further information

If you have a pipe suspension problem, you are invited to write: — Grinnell Company, Inc., 273 West Exchange Street, Providence, R. I.



Bring your work glove problems to Riegel's industrial specialists...they'll be on hand to discuss your individual needs. And be sure to see Riegel's **NEW** line of industrial work gloves—the most complete line of gloves for industry. Don't miss Booth 500...the glove surprise of the show!

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Beats old belt by a clean 800%

A^N expensive custom-built belt was first choice for the tough, twisting, quarter-turn drive on this tube winder. But it left smudging marks on the cylindrical containers the machine turns out. And within six months that belt gave out entirely.

Then the G.T.M.-Goodyear Technical Man-offered his solution: A COMPASS CORD Belt engineered to shrug off twisting strains—and with one side covered with non-marking white rubber.

At last check, the G.T.M.'s belt had handled its tough job for 4 solid years. It's never left a mark on a single container. And it's still going strong!

Little wonder the G.T.M. is called in to solve so many tough industrial rubber problems. Remember – you can always reach him in a hurry by contacting your Goodyear Distributor or writing:

Goodyear, Industrial Products Division Akron 16, Ohio

COMPASS CORD BELT by

GOODFYEAR

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Compass -T. M. The Goodyear Tire & Bubber Company, Akron, Ohia

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The big difference is

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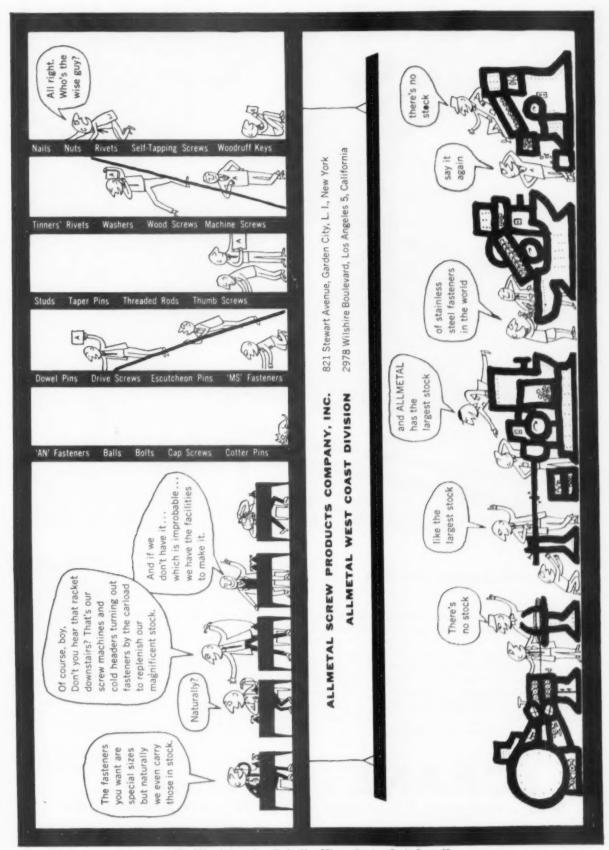
When you ship by Railway Express, you pay one fixed charge from pickup to delivery, within vehicle area limits. That's all. No hidden costs or extra charges.

What's more, you get coverage no other company can match—Railway Express reaches some 23,000 American communities.

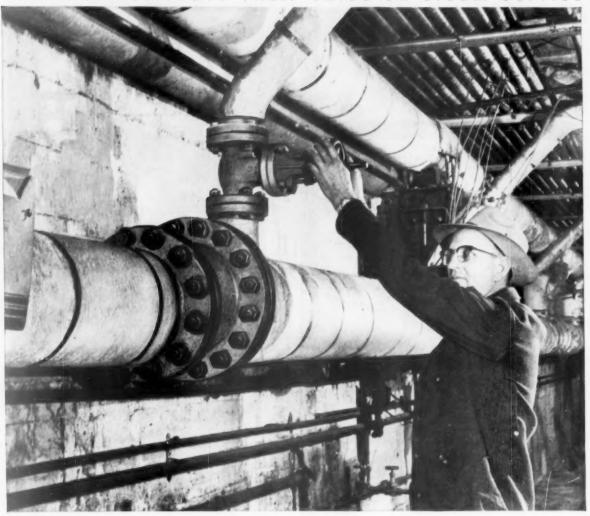
And now, with Railway Express' new World Thruway Service, you can speed shipments to and from almost anywhere in the world! So, whether you're sending or receiving, here or abroad—always call Railway Express,

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Crane Valves Prove Their Value on Steam Service



Out-slugs steam for 34 years!

Valve records like this can point the way to lower piping maintenance costs in your own plant!

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In all that time, only one of the original

40 valves has been replaced. More important, 39 of the original valves... and the replacement... are still giving dependable control of steam to kilns—with no more than routine stuffing box maintenance since installation in 1923.

Be sure *your* operation gets low-cost valve service: insist on Crane valves and fittings, from the big, complete Crane line—first choice of industry for over a century.



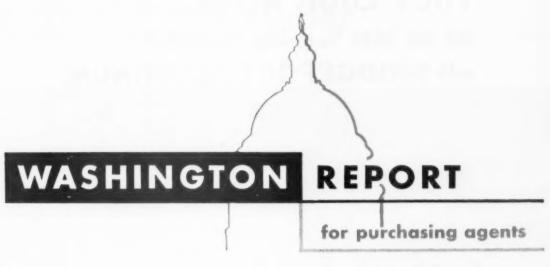
ASK FOR your copy of "Valve Performance Facts" —32 case histories on valve installations throughout industry. See your Crane Ropresentative or write Crane Co. today.

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For More Information Circle No. 164 on Inquiry Card-Page 17



by A. N. Wecksler

May 1, 1957

CRUCIAL DECISION BY MILITARY

Key to the economy rests in a hard military decision—which the military is not prepared to make. On the outcome rests the turn which military production will take—and the whole makeup of the armed forces.

The decision involves the shift to push-botton armaments—guided missiles as against manned aircraft. So far the military is unable to clearly define to what extent it can put its trust in guided missiles.

guided missiles.

Until the outlook clears, the military will build up side by side the manned and unmanned versions of weapons designed to accomplish the same mission.

PUSHBUTTON WARFARE UNTESTED

As an example, the Air Force is refining its current heavy bomber punch—the B-52's—and at the same time developing more advanced models of manned heavy bombers.

Simultaneously, the military is working on an ICBM-intercontinental ballistics missile—which, in essence, is designed to do the same thing as the heavy bomber.

There are also guided missiles that will function in many respects as do short-range fighter planes—as long-range fighters and as intermediate range bombers.

The question as to whether the push-button weapons can fully accomplish the missions of the manned weapons which they roughly duplicate, is as yet unanswered.

TESTING NOW UNDERWAY

Military commanders know that when they give the word to a wing of manned aircraft to go on a mission, they will have some assurance of the performance.

With guided missiles, the <u>only avenue of assurance is repeated firings</u> of the missiles. This is the <u>only sure way to get</u> a statistical picture of the missiles reliability.

WHAT IT MEANS

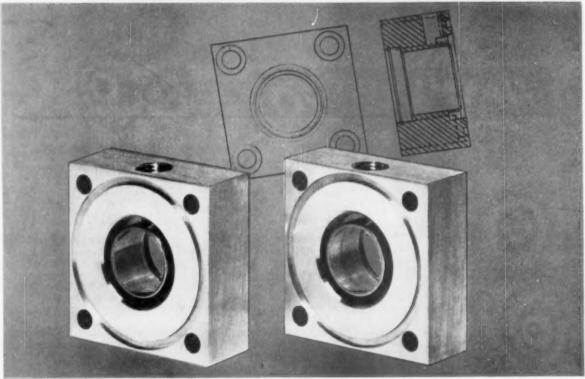
The purchasing agents' concern in basic military decisions is almost universal, for the decisions obviously affect the economy and the tax structure. Until a decision is reached, the military will be buying fleets of manned aircraft as well as a large arsenal of guided missiles.

This, roughly, is the military dilemma:

1. A decision will have to be made on how much reliance there can be on push-button weapons.

THEY LOOK ALIKE...

but one takes 1/3 as long to machine with BRIDGEPORT ALUMINUM



Note close-tolerance finishing on cylinder head. The uniform structure of Bridgeport Aluminum makes machining and drilling fast, easy, economical.

MATERIAL
MACHINING CYCLE
OPERATIONS PERFORMED
TOOL LIFE

Steel
15 MINUTES
9
MINIMUM

Bridgeport Extruded Aluminum, Alloy 6061-T6

LESS THAN 5 MINUTES

3

SUBSTANTIAL INCREASE

In planning the production of the front and rear heads of its air-hydraulic cylinders, Alkon Products, Hawthorne, N. J., originally considered machining them from steel. Then the Bridgeport Man arrived with a briefcase full of ideas. Now these parts are machined from Bridgeport Extruded Aluminum bar stock. The comparative story above tells why.

Add these other benefits – the ease of handling the bar stock ... the lustrous, sales-appeal of Bridgeport Aluminum ... elimination of rust and corrosion problems in inventory and storage ... savings in shipping weight and

strength of packaging required.

If you have a parts problem that might be solved by aluminum extrusions, let the Bridgeport Man in your locality know-about it. He'll be glad to call and give you the benefit of Bridgeport's ideas and experience in aluminum extrusions.



Alkon Products Model "D" Cylinder, with front and rear heads of Bridgeport Extruded Aluminum, exceeds HC standards for air, water, oil.

For the very newest in



BRIDGEPORT, ALUMINUM

Aluminum Extrusion and Forging Facilities at Adrian, Michigan

Bridgeport Brass Company, Aluminum Division, Bridgeport 2, Connecticut - Offices in Principal Cities

For More Information Circle No. 165 on Inquiry Card-Page 17

2. While the decision is in the making, the military will have to maintain a dual system of both manned aircraft and guided

3. Only sure way of gaining confidence in the push-button weapons is by continuous and repeated firings of the missiles -which is costly.

DEVELOPMENT A SLOW PROCESS

No quick answer is expected. There is confidence among missile makers that they can develop more efficient and longerrange missiles.

There seems to be a fairly convincing trend toward the thinking that guided missiles can be used for many missions in place of manned aircraft.

But the decision will not come in a flash. The Army's experience with development of the Nike—establishment of Nike battalions and the improvement of this missile—indicates the pattern of other missile development. The development, use and training in the instance of Nike was a slow process.

This means that in each class of weapons, missiles will have to prove themselves. Only then will the military accept a missile as replacement for the weapons in current use.

RESULTS REPORTED ENCOURAGING

At the present stage, it is quite clear that missile develop-

ment has gone ahead at a better rate than expected.

The decision to push harder toward perfecting the intercontinental ballistics missile—and to take some of the urgency out of developing a nuclear powered military aircraft-indicates there is confidence that a missile can be guided to a target 5,000 miles away or even farther.

For the next year, and possibly for several years, the military picture will be one of a side-by-side buildup of manned and unmanned aircraft. This holds true for all of the military services. The Army's use of air weapons is wholly in the field of rockets—but the Army is trying desperately to gain more mobility by use of manned aircraft.

In the process there will be decisions as to whether one type of weapon or another is more effective, and when these decisions are reached—the weapon found wanting will be discarded.

Left to its own devices, the military might tend to drag its feet on these decisions—taking the position that such a course would lessen risks.

But pressures for action will come from the huge strains on the budget—the large tax burden.

Also, as it becomes apparent that a <u>push-button weapons system tends to antiquate the "doughboy"</u> and calls for a professional soldier-specialist class, there will be pressures to change the nature of military organization.

CHANGEOVERS IN THE OFFING

As an overall guide in the thinking of industry, this is a period when development and testing is going on. In the not-toodistant period ahead, decisions will be made that will cut down the need for a dual system of manned and unmanned weapons.

The military production cycle has been one of constant change during and following World War II, and the changes will continue with even greater rapidity.

A FISTFUL OF LEAD FOR "BUILT-IN" PRODUCTIVITY

Controlled additions of lead, introduced when the ingots are teemed, produce steel with vastly superior machining qualities compared to same steel unleaded.

Leaded alloy and carbon are freer machining, permit faster feeds and speeds and greatly increase tool life. They cut clean and with a fine finish which frequently eliminates the final machining operation. These better machining qualities add up to a kind of "built-in" productivity that can mean substantial production line savings for you.

If you would like to see for yourself what "built-in" productivity can mean in your operation, ask us to lead half of your next Aristoloy order. Our field metallurgist is also at your disposal—ready to work with you in selecting the best leaded grade for the job.

For complete information, call the Copperweld office in your nearest major city, or write direct.



COPPERWELD STEEL COMPANY

Steel Division . Warren, Ohio

EXPORT: Copperweld Steel International Co., 225 Broadway, New York 7, N.Y.

For More Information Circle No. 166 on Inquiry Card-Page 17

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Value Analysis Issue - PURCHASING Magazine - May 1957

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Take advantage of the information available to you on the cost-saving ideas, products and services you'll read about in this edition of PURCHASING Magazine.

To help you get the maximum of information with the minimum of effort, we have provided 2 Reader Service Cards for your use. You can use *ONE* card to request data on *ALL* the items in which you are interested.

Turn to the opposite side of this page. There you will find a card with numbers that correspond to the numbers you will find on the case histories and ads. Circle the items on which you desire information. Sign the card and mail. No postage is necessary. That's all! PURCHASING then will have the manufacturers forward you the information you requested.

ONE CARD WILL TAKE CARE OF ALL YOUR REQUESTS

PASS THE EXTRA CARD TO OTHER PURCHASING PERSONNEL

catalog files

information for your

ABRASIVE BELTS

An 8-page brochure describes M-A-P, a method of predicting performance of abrasive belts on any metal removing job (except snagging) in advance of purchase of equipment or materials.

The Carborundum Co.

Circle No. 1 on Inquiry Card-Page 17

BEARINGS

Catalog No. 57 deals with a new concept in ball bearing design, the "Fractured Race Technique." Fracturing outer ring of bearing, opens it sufficiently to introduce full complement of balls.

Split Ballbearing Corp.

Circle No. 2 on Inquiry Card-Page 17

CAPS, PLUGS

A fact file provides a quick quide to an expanded line of plastic closures. Data is supplied on a full line of threaded and non-threaded caps and plugs for safeguarding products at all times.

Protective Closures Co., Inc.

Circle No. 3 on Inquiry Card-Page 17

CONTROLS

All major equipment for control and measurement of liquids and gases is listed and illustrated in 36-page bulletin, No. 005. It describes controllers, gages, manometers, Venturi tubes, etc.

Simplex Valves & Meter Co.

Circle No. 4 on Inquiry Card-Page 17

CORD SETS

The 3-color catalog, No. 3-57, describes and illustrates heavy duty cord sets both 2- and 3-wire, 125 v and 250 v for power tools, appliances and air conditioners. Charts give sizes.

Royal Electric Corp.

Circle No. 5 on Inquiry Card-Page 17

DRIVES (MAGNETIC)

Data on design, drive features, operating and performance curves and output torque rating-dimensions of a line of magnetic drives are supplied in illustrated brochure No. W-T 1-57.

Whitney Chain Co.

Circle No. 6 on Inquiry Card-Page 17

DRYERS

Book 2609 contains information on drying, cooling and processing of bulk materials by means of multi louver dryers. They accurately control temperatures insuring fast treatment.

Link-Belt Co.

Circle No. 7 on Inquiry Card-Page 17

ELECTRODE (ALUMINUM)

The advantages of an extruded coating over conventional hand-dipped coatings on aluminum electrodes are explained in a 2-color folder, No. 2101 DC. They weld in all positions.

Eutectic Welding Alloys Corp.

Circle No. 8 on Inquiry Card-Page 17

END MILLS

A pocket sized, 36-page catalog gives full descriptions, specifications and list prices of a line of end mills, keyseat cutters, center reamers, combined drills and countersinks.

Fastcut Tool Co.

Circle No. 9 on Inquiry Card-Page 17

FASTENERS (STAINLESS, ALUMINUM)

A 4-page brochure describes a line of high quality fasteners, available in stainles steel and aluminum, as well as other materials. They include screws, washers, bolts and nuts.

Accurate Threaded Fasteners, Inc.

Circle No. 10 on Inquiry Card-Page 17



FASTENERS (STANDARD)

A selection, out of 4000 standard fasteners carried in stock, is covered, with illustrations, in a 6-page color folder. Also detailed are the company's engineering and quality control services.

The Chicago Screw Co.

Circle No. 11 on Inquiry Card-Page 17

FLUORESCENT BOOKLET

Prepared for industrial users of fluorescent lamps, a 24-page booklet has sections on the advantages of fluorescent lighting and the development of fluorescence. Pictures supplement text.

Sylvania Electric Products Inc.

Circle No. 12 on Inquiry Card-Page 17

HACKSAW BLADES, FRAMES

An 8-page folder gives full specifications and illustrations of machine and hand saw blades. It lists material cutting recommendations from aluminum to structural steel.

Henry Disston Div., H. K. Porter Co., Inc.

Circle No. 13 on Inquiry Card-Page 17

HEATERS

Short and long form calculations for heating applications are included in a 72-page catalog, designated GEC-1005H which covers various standard types of electric heaters and heating units.

General Electric Co.

Circle No. 14 on Inquiry Card-Page 17

HOISTS (PORTABLE)

Multi-purpose, single drum portable hoists with lifting capacities from 750 lb to 5000 lb are covered in a 12-page. 2-color booklet No. 3-71. There are air, electric and gasoline driven units.

Joy Mfg. Co.

Circle No. 15 on Iniquiry Card-Page 17

HOSE CLAMPS

Catalog No. 300 RG-56 is a compilation of standard hose clamps, grooved hose fittings, speciat tools and replacement parts. Profusely illustrated, it instructs in proper applications.

Punch-Lok Co.

Circle No. 16 on Inquiry Card-Page 17

LOCK NUTS

Engineering data and test procedures are offered in a 2-color brochure describing a line of lock nuts and semi-finished nuts. Details are given on a 2way nut with locking power in body.

MacLean-Fogg Lock Nut Co.

Circle No. 17 on Inquiry Card-Page 17

MACHINE TOOLS

Precision machine tools are illustrated and priced in catalog No. 5700 (80 pp). Specifications are included on capacities, floor space requirements and shipping weights. Attachments are listed.

South Bend Lathe

Circle No. 18 on Inquiry Card-Page 17

METERS, REGULATORS, VALVES

Condensed catalog No. C-5000, Rev. 8 devotes 28 pages to describing a line of meters, regulators and valves. Data are supplied on power pilot loading by remote control. Photos are supplied.

Rockwell Mfg. Co.

Circle No. 19 on Inquiry Card-Page 17

MILLING MACHINES

A multi-colored general catalog, No. M-1961, fully covers a line of milling, grinding, broaching and allied machines. Full specifications are supplied with clear cut photos of each machine.

Cincinnati Milling Machine Co.

Circle No. 20 on Inquiry Card-Page 17

MOTORS (FAN COOLED)

Six basic advantages of new re-rated fan cooled motors are explained in bulletin No. 500-A. Fully-enclosed, they are in ratings from ½ hp to 40 hp and with frames from 182 through 405.

Robbins & Myers, Inc.

Circle No. 21 on Inquiry Card-Page 17

PERFORATED METALS

Perforated metals for industrial and ornamental purposes form the subject of a 4-page folder. It gives ordering specifications for metals in various patterns—cane, slat, lattice, etc.

Wickwire Spencer Steel Div., Colorado Fuel & Iron Corp.

Circle No. 22 on Inquiry Card-Page 17

Circle Card Opposite Page 17 to Obtain These Catalogs Additional Catalogs on Page 20

> For More Information Circle No. 167 on Inquiry Card—Page 17→

> > PURCHASING

USING

DU PONT ELASTOMERS



HYPALON hose pipes 60,000 lbs. of concentrated acid daily—in use 21 months without a failure

NEOPRENE keeps welding curtains, tarps fire-resistant

A neoprene coating on welding curtains and tarpaulins keeps them fire-resistant and adds to their service life. Although they are made of fire-proof materials—glass cloth for the curtains and asbestos for tarpaulins—they are often splashed with oil and grease. The neoprene coating keeps these materials from soaking into the fabric. Thus, sparks striking the curtain and molten metal falling on the tarpaulin will not ignite the cloth—neoprene will not support combustion.

Neoprene provides other advantages as a protective coating. Because oil and grease are prevented from attacking the welding curtains and tarps, they can be scraped clean or laundered without damage. It also makes fabrics tear-resistant and impervious to weathering—these curtains will outlast any comparable sheeting lacking the protection of neoprene coating.

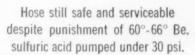
Neoprene offers savings wherever you need a durable resilient material for tank linings, hose, gaskets or other applications. It resists oil, chemicals, heat, sunlight, weather. Send coupon for more details.



Neoprene coating won't support combustion, stops oil and grease from soaking curtain, keeps it fire-resistant.



Rubber hose previously used for acid discharge lines charred and cracked after only 8 weeks' use.



Two costly accidents brought the problem of handling concentrated sulfuric acid to a head for Rogers Cartage of Chicago — a tank truck hauler of acids and other chemicals. In one case, a conventional rubber acid hose burst and sprayed several men with acid. In another, a rubber hose burst and 30,000 lbs. of acid were lost.

HYPALON-lined acid hose supplied the answer and ended the accidents. Experimental use on company trucks worked so well that Rogers equipped their entire fleet with 3" HYPALON discharge hose. It provides long, safe service because HYPALON is exceptionally acid-resistant.

Jack Kidder, Safety Director at Rogers Cartage, has this to say about HYPALON: "That hose was a real lifesaver. We



HYPALON hose shows no internal acid damage, exterior aging or weather cracking in nearly 2 years.

started using it in August, 1955, and have never had a HYPALON hose fail." He adds, "... hose inspection indicated no burning or breaks. They appear as new as the day they were put in service."

HYPALON has other qualities you will find useful where severe service conditions exist — it resists chemicals, heat, sunlight and weathering, and has complete ozone resistance. The coupon will bring you complete information.



One driver easily handles an 8' length of 3" HYPALON hose with safety.



HYPALON is a registered trademark of E. I. du Pont de Nemours & Co. (Inc.)

BETTER THINGS FOR BETTER LIVING . . . THROUGH CHEMISTRY

- ☐ I am particularly interested in_
- Please add my name to the mailing list for your free publication, the ELASTOMERS NOTEBOOK.

E. I. du Pont de Nemours & Co. (Inc.) Elastomer Chemicals Dept. PC-5

Wilmington 98, Delaware

Name

Firm Address

City

Cint

catalog

RESURFACER

A 6-page folder explains why a resurfacer has a wide range of industrial uses, bonding equally well at ½" thicknesses to concrete, brick, asphalt, wood or steel to smooth out worn surfaces.

Stonhard Co., Inc.

Circle No. 23 on Inquiry Card-Page 17

RUBBER (SYNTHETIC)

A 16-page booklet concisely details the properties and applications of Neoprene, a general purpose and Hypalon, a special purpose synthetic rubber. They are compared with other materials.

E. I. du Pont de Nemours & Co.

Circle No. 24 on Inquiry Card-Page 17

SEALS

Size ranges, specifications and performance data of materials used in fluid sealing are outlined in a 12-page, illustrated bulletin. They include shaft and end face seals, mechanical cups, etc.

Chicago Rawhide Mfg. Co.

Circle No. 25 on Inquiry Card-Page 17

SILICONES

The condensed, 8-page catalog, No. CDS-97, discusses more than 115 applications for silicones. Specialized literature covering product and application information is listed.

General Electric Co.

Cirlce No. 26 on Inquiry Card-Page 17

SAFETY SHOES

Over 90 safety shoe styles, available in more than 6,500 different designs, lasts, sizes and widths are illustrated and described in a 32-page brochure. Charts show what shoe suits.

Hy-Test Shoes

Circle No. 27 on Inquiry Card-Page 17

SHAPE CUTTING MACHINE

Form ADC 660B (8-pages) describes the advantages and applications of a portable shape cutting machine. Cutting range, weights, dimensions and other specifications are shown with illustrations.

Air Reduction Sales Co.

Circle No. 28 on Inquiry Card-Page 17

SLINGS (WOVEN WIRE)

Gripper woven wire slings are described in detail in an 18-page catalog. Typical applications are illustrated and complete information is supplied on prices.

Cambridge Wire Cloth Co.

Circle No. 29 on Inquiry Card-Page 17

STEEL (ELECTRICAL)

A 56-page manual gives typical test results on three types and five thicknesses of thin electrical steel. There are 39 pages of design curves, ranging from core loss to lamination factors.

Armco Steel Corp.

Circle No. 30 on Inquiry Card-Page 17

TAPE (FRICTION)

Illustrations, reference charts and descriptive information on a full line of friction, rubber and plastic tape are supplied in a 4-page catalog. Applications to different packaging are shown.

Boston Woven Hose & Rubber Co.

Circle No. 31 on Inquiry Card-Page 17

TAPES (PRESSURE SENSITIVE)

A 3-page foldout brochure describes applications for printed and die-cut pressure-sensitive tapes. It illustrates in colors how they will identify standardized stock items, inexpensively.

Minnesota Mining & Mfg. Co.

Circle No. 32 on Inquiry Card-Page 17

TUBES (ALUMINUM)

An illustrated 4-page folder discusses the advantages of deep drawn aluminum tubes in solving complex problems of metal furniture manufacturing. Properties are given and hints on ordering.

Harvey Aluminum

Circle No. 33 on Inquiry Card-Page 17

VALVES

Pilot operated, poppet-type air control valves are covered in catalog No. 105. They are available for 2-, 3-, and 4- way operation with master (air), single or double solenoid pilot control.

Galland-Henning Nopak Div.

Circle No. 34 on Inquiry Card-Page 17

WELDER

Details about simplified automatic and semi-automatic welding are supplied in a 4-page illustrated brochure. The welder supplies current at preset constant voltages for uniform bead shape.

Metal & Thermit Corp.

Circle No. 35 on Inquiry Card-Page 17

WHEELS

A catalog consists of 24 pages of information and data on a wide range of wheels, tires and drive wheels, for equipment incorporating juvenile type wheels, light or heavy industrial wheels.

Allied Wheel Products, Inc.

Circle No. 36 on Inquiry Card-Page 17



Thousands of sizes . . . available for prompt delivery

Whenever you face the problem of finding the right oil seal quickly \dots in extensive or limited quantity \dots check C/R.

More than 20 types, forming over 7,500 size combinations for shafts from ¼" to 50" O.D. are available—the majority from stock! C/R shaft type oil seals fit most seal applications... from simple dust exclusion to high-speed, high temperature fluid retention under extremely rugged operating conditions where high sealing efficiency must be maintained over long service life.

Check C/R...you'll find the seal to solve your problem available from stock in most cases. Or C/R engineers will gladly offer their unrivaled experience and facilities to create and produce special designs.

More automobile, farm and industrial machines rely on C/R Oil Seals than any other similar sealing device.



This new, comprehensive catalog of stock C/R seals is now ready. Write for your free copy.

CHICAGO RAWHIDE MANUFACTURING COMPANY
1239 Elston Avenue · Chicago 22, Illinois

Offices in 55 principal cities. See your telephone book.

In Canada: Manufactured and Distributed by Chicago Rawhide Mfg. Co. of Canada, Ltd., Hamilton, Ontario

Export Sales: Geon International Corp., Great Neck, New York

CHICAGO RAWHIDE

Other C/R Products

Sirvene (synthetic rubber) molded pliable parts • Sirvis-Conpor mechanical leather cups, packings, boots • C/R Non-metallic Gears

For More Information Circle No. 168 on Inquiry Card-Page 17

suppliers

in the news

American-Standard Air Conditioning Division, New York, has appointed Frank Hickey a district representative in the Boston territory and Ted Bujewski a district representative in the Detroit region.

Hardie W. Beck has been appointed to the newly created post of sales manager for the Pittsburgh steel service plant of Ryerson & Son, Inc., Chicago, Ill. Mr. Beck joined the merchandise de-



Hardie W. Beck

partment in 1945 and entered sales work the following year. He was manager of the inside sales department for nine years before he became a sales representative in 1956. He remained in the latter post until his appointment as sales manager.

Robert J. Casterton has been named district manager of the New York office of the Spang-



Robert J. Casterton

Chalfant Division, The National Supply Company, Pittsburgh, Pa. He succeeds Eugene E. Conroy, who has retired. Mr. Conroy will continue to serve the office on an advisory basis. Mr. Casterton joined the company in 1939, and worked in the Ambridge and Etna, Pennsylvania, plants and the Pittsburgh and Tulsa sales offices. He was appointed a sales representative in Pittsburgh in 1948 and was transferred to the Boston sales office in 1950.

The promotion of Lewis L. May, Jr., to Gulf regional manager of the Industrial Division has been announced by Gould-

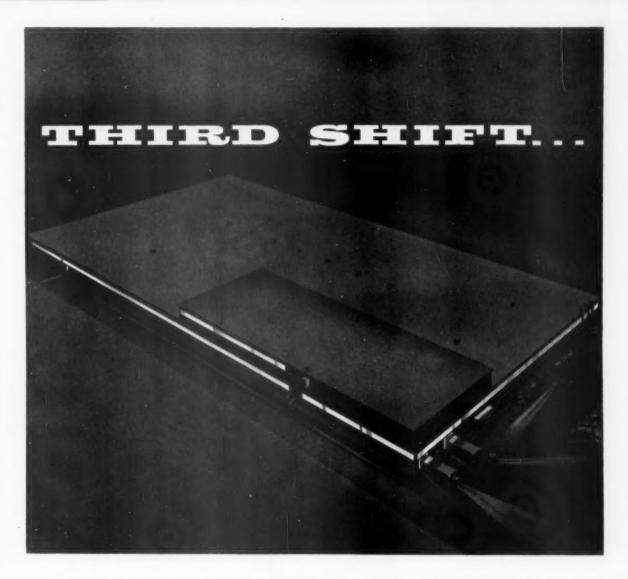
National Batteries, Inc., Trenton, N. J. He will expedite the selection and service requirements of industrial battery users from the regional headquarters office at 4935 Cass Street, Dallas, Texas. The Gulf region includes Texas, Louisiana, Mississippi, western Tennessee and southwestern Alabama.

Lamson Mobilift Corp., Portland, Oregon, has announced the promotion of Robert Mercer to



Robert Mercer

district manager of the west coast region. He will be responsible for the coordination of all sales and service of Mobilift dealers on the west coast and in the Rocky Mountain states. His duties also include managing the company's sales office in Berkeley, Calif.



Tonight we are making the screws you will order tomorrow

Machine Screws & Nuts • Wood Screws • Wood Drive Screws •
A&B Tapping Screws • Dowel Screws • Roll Thread Carriage
Bolts • Hanger Bolts • Stove Bolts



Warehouses: New York • Chicago • Los Angeles • Dallas Sold Through Leading Wholesale Distributors Southern's speedy service, combined with quantity production of quality screws—keeps us working 'round the clock.

And Southern's strategically located warehouses speed your order to you quickly—on time as promised. Or the order can be filled in as little as five minutes from our plant!

You can save time and production dollars by making Southern your one source for U. S. Asmade fasteners. . . . Over a billion screws and bolts in stock—all meeting rigid specifications that assure faster assembly, tighter fit, greater holding power.

In steel, brass, silicon bronze, aluminum, and stainless steel; slotted or Phillips.

Write for Warehouse Stock Guide, samples and Stock List.

Address Box 1360-P. Statesville, North Carolina.



Horace W. Whitman has been made general manager of the Machine Division of the **Torring**-



Horace W. Whitman

ton Manufacturing Company, Torrington, Conn. Mr. Whitman will supervise sales, production, engineering and purchasing activities for the company's wireforming and rolling mill products.

J. C. Findlan has been advanced to the position of sales manager of the Geigy Industrial Chemical Division of Geigy Chemical Corp., Ardsley, N. Y. Mr. Findlan has been field representative for the company since 1953, at which time the division was identified as Alrose Chemical Company.

Two additions to its sales force have been made by the Standard Tool Co., Leominster, Mass. John N. Neuman has been named to represent the company in the mid-west with offices in Chicago. Milo Dellman will cover the west coast from headquarters in South Gate, Calif.

John L. Taylor, vice president in charge of sales for the Edwards Company, Inc., Norwalk, Conn. has been elected vice president



John L. Taylor

and a member of the board of directors. Mr. Taylor began his career with the company in 1924 in New York City with the inside sales department. He also serves as company representative in the National Electrical Manufacturers Association.

The Babcock & Wilcox Co., Beaver Falls, Pa., has announced the opening of a new district sales office for its Tubular Products Division in Atlanta, Ga.



William Lehr

William Lehr has been named to manage the new office located at 830 Peachtree N. W. Now open for business, the office serves the entire states of Georgia, South Carolina, North Carolina, Alabama, Florida and the southeastern section of Tennessee.

Valentine B. Chamberlain, Jr., has been appointed sales manager of The Stanley Chemical Company, a subsidiary of The Stanley Works, East Berlin, Conn. He succeeds Arthur B. Sherry who has resigned. An associate of the company since 1941, Mr. Chamberlain has been assistant sales manager in charge of national accounts. He had been a sales representative for the company for ten years.

Lou D. Grove has been made sales and engineering representative in New York State for Cone-Drive Gears Division, Michigan Tool Company, Detroit.

Whittaker, Clark & Daniels, Inc., New York, has announced the appointment of Leverett A.



Leverett A. Anderson

Anderson as sales representative in the Ohio territory. He will be responsible for the distribution of various products to the plastic and rubber industries.

G. C. Van Heusden has been promoted to district manager of the New York warehouse and office at Maspeth, L. I., by Chase Brass & Copper Co., Waterbury, Conn., a subsidiary of Kennecott Copper Corporation. He succeeds Herbert H. Bartlett, who has retired after 31 years of service with the company. Mr. Van Huesden has been associated with the company since 1925, spending virtually all of the time in sales activities.

Walter E. Peek has been appointed general sales manager of Centralab, a division of Globe Union Inc., Milwaukee, Wis. His new assignement covers all company products.

IS A BIGGER WORD THAN EVER



SAVED \$220.63 EACH

A ring originally designed as a casting weighed 390 lbs. and cost \$280.00. Later it was purchased from Amweld, as a rolled and flashwelded ring made from a contoured mill-rolled shape. More than triple savings resulted. Basic cost dropped to \$59.37 and weight was reduced to 94.5 lbs. In addition, considerable time and money were saved in the finished machining operation.



SAVED \$103.46 PER RING

Rough rings purchased by a well-known manufacturer of jet aircraft engines weighed 135 lbs. each. Most of this weight was excess metal which had to be machined away. American Welding's Industrial Products Division, working with this company, studied the product and recommended a flash butt-welded ring, formed from a special mill-rolled shape. Adopting this new ring saved 88 lbs. of metal and eliminated much of the machining time required.

American Welding can help cut costs in your plant by suggesting the use of rings rolled and flash welded from mill-rolled or extruded shapes.



THE AMERICAN WELDING & MANUFACTURING CO.

Contact the Industrial Products Disision of The American Welding & Manufacturing Company. We will be glad to show you more actual cases of cost savings.



AMERICAN WELDING

The World's Leading Manufacturer of Welded Rings

For More Information Circle No. 170 on Inquiry Card-Page 17



Recent airfreight report published by Harvard Graduate the need for A Distribution Study

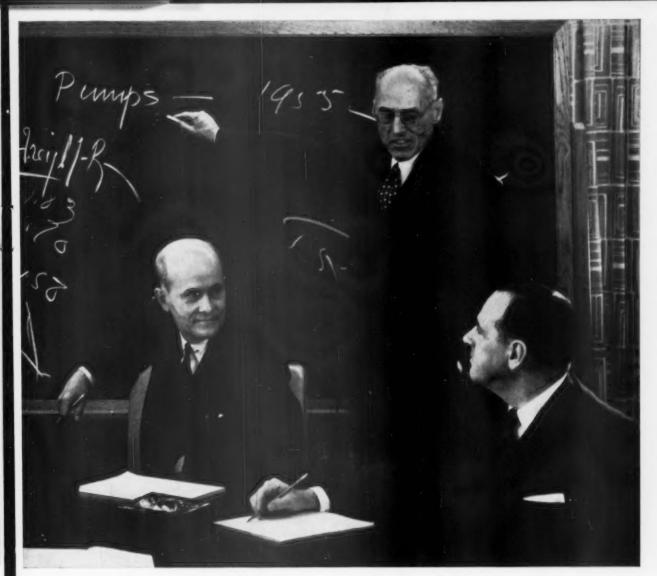
THE impact of airfreight upon modern business is the subject of an extensive report published by the Harvard Graduate School of Business. Titled "The Role of Airfreight in Physical Distribution," this three-year study by Dr. Howard T. Lewis, Professor of Marketing of Harvard Business School, and Dean James W. Culliton of Notre Dame develops the following conclusions for businessmen:

"The ultimate purpose of transportation should be to reduce the expenses of production and distribution."

"No generalizations can be made about the amount of savings possible. Each company must answer this question for itself after a thorough analysis of its peculiar conditions."

"The decision to use airfreight is almost always made by top management,"

At blackboard, Dr. Howard T. Lewis, Professor of Marketing at Harvard, discusses distribution by air with the Regional Sales Vice-Presidents of American Airlines.



School of Business emphasizes

by Management

These salient points are the platform on which American Airlines bases its Distribution Consultant Service for Management. We know by experience with many outstanding companies like the Burroughs Corporation and Armour Laboratories that shipments by air can increase sales and lower costs of handling, finance, packing, inventory and warehousing. Usually, however, these benefits were uncovered only after a thorough study had been made by experts of a company's product and distributive patterns.

If you would like to use American Airline's Distribution Consultant Service to determine whether the benefits of this modern transportation can be applied to your business, write to: Mr. S. C. Dunlap, Vice President—Cargo, American Airlines, Inc., 100 Park Avenue, New York 17, New York.

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f.o.b.

filosofy of buying



SOMEBODY "laid an egg". The purchase order called for a special 10" heat exchange sphere of aluminum oxide. It was to be used in an unusual research project, the customer explained. Very unusual, the folks at Norton Company agreed, but they made it up strictly according to specification. When the job was finished and the customer saw what he had ordered, he was amazed. Seems that the spec writer's slide rule had goofed, or the order typist's machine had stuttered, to the extent of one decimal point. Nobody caught the error. What he really wanted was a 1.0" sphere.

The perplexed gentleman concentrating in the photo is George Gage (an appropriate name). In the Norton laboratory office, he is trying to hatch an idea on what to do with the king size egg that nobody wants. Any serious suggestions, we are assured, will be welcomed.

W HEN National Carbon Company celebrated the tenth anniversary of its St. Albans (Vt.) plant early this year, 42 "charter employees" celebrated ten years of service at the plant. Senior member of this group, in point of service, was P.A. Rupert N. Lampman. He joined the company eight months before the plant was opened. His first job was equipping the still unfinished building and getting in the initial materials before there could be jobs for the other 41. Purchasing is the first step in production.

WHENEVER "outsiders" get their first personal demonstration of a purchasing group at work, they are impressed both with the caliber of today's industrial buyers and the seriousness with which they take their jobs. Business Editor Paul Townsend of the Evansville (Ind.) Courier had his initiation to this unfamiliar territory at a recent meeting of the P.A. Association in that city, and devoted a good part of his column the following day to reporting on this hard working, progressive group that he had discovered playing an important part in the city's business activities. We are gratified that the discussion program for that evening was based on a current article in Purchasing Magazine. We regret his error in reporting this journal as an official publication of N.A.P.A. This is a common misconception that we are constantly at pains to correct. Purchasing cherishes its status as an independent journal working side by side with the Association for the advancement of the purchasing profession.

There are two practical morals that Association officers everywhere can draw from the Evansville experience:

1. There's a wealth of fine program and discussion material in the editorial pages of Purchasing month after month. Use it.

2. There's still a long way to go in effective public relations work among the press and the leaders of the local business community. Invite them in as the occasion permits. Let them see and know what you are doing.

THE EDITORIAL writer for the Davenport (Iowa) Morning Democrat refers to purchasing agents as "those resolute skeptics". His reason is that professional buyers generally are "not buying" because of the inflationary scare set off by the Suez crisis. Management may have cause to be grateful for this resolute skepticism. The professional economists advise that as a general principle, in the absence of actual war, it's almost always safer to proceed on the assumption that peace will continue.





individual problem and would like to have us recommend the best way to insert the wire cloth piece send us tentative drawings and specifications. If you are ready to order, we'll be glad to quote.

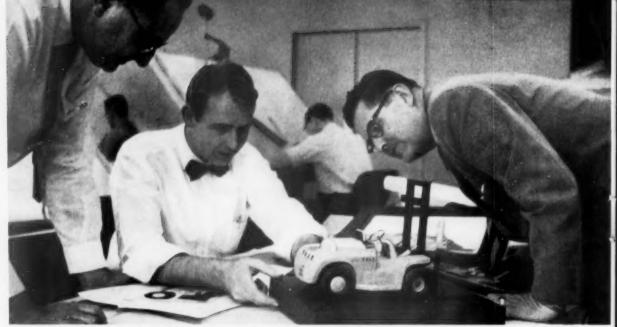


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351 Verona Avenue, Newark 4, New Jersey For More Information Circle No. 173 on Inquiry Card-Page 17



NEW ADVANCES IN RESEARCH AND ENGINEERING

Spearheading the development of new materials handling methods and equipment are the creative engineering staffs of the Yale Research Center in Valley Forge, Pa., and of the Yale Philadelphia Plant. Among the Yale advances of recent months: Yale "Integrated Design" Gas and Electric Trucks; the shortest rider-type electric truck; automated Yale hoist systems. In future months, Yale will give industry even more dramatic advances.

EXPANDED SALES AND SERVICE FACILITIES

Today, a total of 83 Yale Sales and Service Offices, located throughout the United States and Canada, offer quick, on-the-spot attention to your specific needs. Each unit is staffed with highly qualified materials handling salesmen and factory-trained service personnel.



EXPANDED PRODUCTION FACILITIES >

New Yale plant in San Leandro, California will meet industry's need for ready availability of industrial lift trucks in the West (right). In addition, the production capacity of Yale's headquarters plant in Philadelphia has been increased to further meet industry demand.

YALE BUILDS FOR THE

기 회 () (최 R (A)

Today, expanding industry is in the New Era of faster production and distribution of goods in greater volume than ever before. To meet the higher goals, progressive management demands bold, new—and practical—methods for handling materials of every type with greater speed, efficiency and cost control.

To this end, Yale builds—to offer industries of every type and size new scope in dealing with the handling problems created by rapid industrial growth. Yale builds with research and engineering—with aggressive inquiry into every facet of materials handling, with advances in equipment design and application.

Yale builds with expanded sales and service facilities—bringing industry into closer local contact with men of wide experience in the materials handling field. And, Yale builds with concrete evidence of its recognition of industry's need not only for industrial lift trucks and hoists that fill today's critical requirements, but also for their ready availability. Such evidence is the new Yale plant in San Leandro, California.

These most recent Yale developments, all geared to give industry better handling methods and faster service, will be followed by still others in the months ahead. Look for them—as Yale builds for the New Era.

YALE*

YALE & TOWNE

INDUSTRIAL LIFT TRUCKS AND HOISTS

GASOLINE, ELECTRIC & LP-GAS INDUSTRIAL LIFT TRUCKS . WORKSAVERS

THE YALE & TOWNE MANUFACTURING COMPANY, MATERIALS HANDLING DIVISION. MANUFACTURING PLANTS IN PHILADELPHIA, PA., AND SAN LEANDRO, CALIF





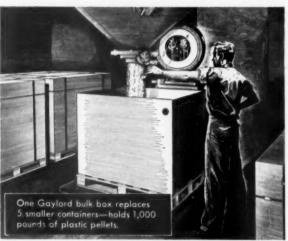
... save 20 to 25 manhours per car ...



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For More Information Circle No. 175 on Inquiry Card—Page 17
Purchasing

The Vendor's Role in Value Buying

THE buyer-seller relationship is present in every purchase transaction. All the modern scientific approach to efficient procurement and materials management has not outmoded this fact nor diminished its importance. Sound buying policies, wise decisions, effective procedures and controls still have to be worked out through agreements with the vendor and, in the last analysis, depend on vendor performance.

Purchasing took a long step forward with the realization that a wholesome buyer-seller relationship is not a case of two adversaries sparring for advantage, but a partnership in the flow of materials, based on common interest and leading to mutual benefit.

Acceptance of this principle has been expressed in many ways, all saying essentially the same thing.

It has been identified as the "service" factor in the buyer's trilogy of quality, price, and service.

It has been recognized as a fundamental requirement in establishing reliability of supply and acceptability of sources.

It is reflected in the new techniques and formulas for selecting and rating vendors.

It has given tremendous impetus to the important public relations aspects of purchasing.

It is summarized in the maxims that a good vendor list is the buyer's greatest asset, and that the right buying decision is all wrapped up in selection of the vendor.

Now a new dimension has been added. Today's biggest purchasing responsibility is value buying. This entire issue is devoted to the tools and methods by which progressive purchasing departments are seeking and getting greater value for their companies. Among the most effective of these tools is the vendor's interest in the buyer's problems as his own, and the vendor's know-how applied to their solution.

In rating a vendor, reliability is no longer the sole factor. The plus values of active cooperation may be even more important. And for the supplier, such constructive cooperation may be his best competitive selling tool.

Good purchasing invites cooperation, listens to vendors' suggestions, works with vendors for greater value, and rewards cooperation with orders in which both parties profit. When such a buyer-seller relationship has been established, through purchasing, it can truly be said that a company's technical and materials resources embrace the resources of all the suppliers from which it buys.

Stuart F. Henrity



about

NEW DEPARTURE

BALL BEARINGS



PROTECTION FOR PRECISION

No precision machine is better than the bearings that support its rotating parts. That is why you find so many highly accurate machines employing New Departure precision ball bearings of ABEC 5, 7 and New Departure 9 specifications.

But, to be sure that all the fine performance of which these bearings are capable is fully obtained in the machine, such bearings must be protected from dirt, needless handling and exposure before mounting.

Now New Departure gives you such protection for precision in another "new departure"—a sealed, transparent container with the important advantages described at the right. Available for a wide range of ABEC 5, 7 and ND 9 specification bearings.

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Transparent box permits quick visual inspection of contents. Box sealed with oil-resistant tape—can be resealed after opening. Bearing identification clearly marked on outside of box. Bearings kept free of contaminants right to assembly area.



Inverted cone in cover holds bearing in central position—permits packaging several sizes of bearings in one box size.



Easy to stack and stock. Box tops and bottoms mate for quick, non-sliding stacking — with identification markings visible for each box.

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For More Information Circle No. 176 on Inquiry Card-Page 17

PURCHASING



How to Use This VALUE ANALYSIS ISSUE This

This special issue—as a whole and section by section—has been designed for one purpose: to give you practical help in applying the modern cost-cutting technique of value analysis. Here's a breakdown of what's in the issue:

Value Analysis—What It Is, How It Works and How to Make It Work for You. Value analysis has been successfully applied in companies of all sizes. Here is a clear and comprehensive explanation of the basic principles of value analysis and tested, down-to-earth advice on how to start and maintain a program in your company. The article has been organized so that you can read it as a complete unit, or refer to individual articles on special aspects of value analysis. The article starts on page 37.

Hundreds of Case Histories of Savings Through Analytical Purchasing. Changes in material and design, purchase of new equipment, switching to different components, use of special services are all part of value buying. Almost 500 actual examples of such money-making moves, described in eight different sections of this issue, offer you a fertile field of ideas for your own purchasing operation. See cover for page numbers of sections.

Advertisements of New and Improved Products and Ideas. More and more, progressive suppliers are coordinating their selling efforts with the value buying concepts of their prospective customers. Supplier know-how and cooperation is an essential ingredient of any value analysis program. A careful check of the advertisements in this issue will help you keep abreast of what's new in materials, equipment and services—and the wealth of technical assistance that is available to you from industrial suppliers.

The Reader Service Card (opposite page 17) will help you get more information on any product or service mentioned in this issue. Every case history, every advertisement, has a key number beneath it. If you want more data on a specific item find its key number on the yellow card, circle it, fill in your name and address and mail the card. No postage is needed. The information you want will be sent promptly.

THE VALUE ANALYSIS ISSUE WILL BE AN INVALUABLE REFERENCE
KEEP IT IN YOUR DEPARTMENT THROUGHOUT THE YEAR AND USE IT REGULARLY.



"Here's a hot one for the slitters

60,000 lbs. of slit coils... delivered early tomorrow!"

A TRUE STORY of Ryerson service—the kind that makes Ryerson your best source for every steel requirement.

It was ten after five. The phone rang and a steel buyer 80 miles away said: "I've simply got to have 60,000 lbs. of slit coils first thing in the morning." Impossible?

Not at Ryerson. This kind of service is what Ryerson customers have learned to count on when emergencies arise.

The needed steel was on hand in Ryerson stocks. Unequalled slitting equipment was put to work. And during the night two different gauges of steel coils were slit to meet two size requirements. Early next morning the steel was delivered as promised ... 80 miles away.

You don't have to wait for an emergency to appreciate Ryerson service. Our stocks and processing facilities enable us to meet practically every demand for steel—no matter what the shape, size, quantity or time requirement.

In addition, you can always depend on Ryerson for steel of high uniform quality.

So call your nearby Ryerson plant for steel or help on steel problems with the assurance of close personal attention by specialists who make your problems their own.

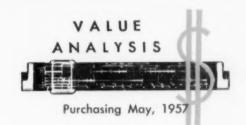
In stock: Carbon, alloy and stainless steel - bars, structural, plates, sheet and strip, tubing, re-bars - industrial plastics, machinery & tools, etc.



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JOSEPH, T. RYERSON & SON, INC. PLANTS AT: NEW YORK . BOSTON . WALLINGFORD, CONN. . PHILADELPHIA . CHARLOTTE . CINCINNATI
CLEVELAND . DETROIT . PITTSBURGH . BUFFALO . CHICAGO . MILWAUKEE . ST. LOUIS . LOS ANGELES . SAN FRANCISCO . SPOKANE . SEATTLE

FOR More Information Circle No. 177 on Inquiry Card—Page 17



The PA's Big Opportunity

V ALUE ANALYSIS is on the march in American industry. And the PA who fails to get in step with it will be left far behind in today's competitive world.

It has been a mystery—particularly to those who have used it successfully—why value analysis took so long to catch on. The idea of having an organized program to seek the lowest cost that must be paid to accomplish a function is a natural for purchasing. The most brutal answer probably is that many purchasing people sought to hide their own ignorance by making public statements like "value analysis is only for big companies"; or, "it's something corporations use only in lush times when they have plenty of money to throw around on so-called experts."

It's more probable, however, that foot dragging on value analysis is due more to general inertia and uncertainty as to just what value analysis is and how to use it. The articles in the following pages are designed to overcome those handicaps—to define value analysis, explain its ramifications, and present a practical plan for establishing it as a continuing activity in any size company.

The section opens with an Explanation of Value Analysis (page 38) followed by specific instructions on How to Analyze Component Parts—Materials—MRO Supplies (pages 40-50). How to Make Suppliers a Part of Your Value Analysis Team appears on page 51. Advice on How to "Sell" Management on Value Analysis (page 56) leads logically into How to Organize for Value Analysis (page 60). A special article describes How to Use Value Analysis to Fight Inflation. The section closes with an examination of Three Value Analysis Programs that are now saving the companies in which they operate many thousands of dollars each year.

VALUE ANALYSIS is the hottest thing in purchasing today.

Only five years ago relatively few companies had organized value analysis programs. Thousands of purchasing agents hadn't even heard of it—or if they had didn't show much interest in it.

Today, over a hundred companies have at least gotten their feet wet in value analysis—thousands more are trying to dig out more facts on it. Suppliers are getting on the bandwagon too. Resistance to value analysis efforts by customers on their products is giving way to wholehearted cooperation—salesmen for the most progressive companies are taking the initiative in suggesting value analysis ideas for their customers' review.

What Is It?

But there is a troublesome paradox in the midst of all this: value analysis is the area of their jobs that most purchasing agents are least sure of. Ask ten different PAs to define value analysis; you will probably get ten different answers—most of them a little vague. Almost

What Value Analysis Is All About

The concept of value analysis is so broad and so deep that it may obsolete present purchasing methods in the next decade. Purchasing agents should prepare now to meet the challenge by starting programs of their own. The going may get rough—but the pay-off will be impressive.

everybody knows it concerns cost reduction. And they also associate it with "tearing products apart to see if you're buying something you don't need."

Value is concerned with cost reduction and with product analysis. But it's also concerned with much more. In fact its scope is so broad and its opportunities so nearly limitless that at least one purchasing agent calls it "revolutionary." This PA claims that, because of value analysis, 1957 style purchasing will be as "obsolete as the buggy whip" by 1967.

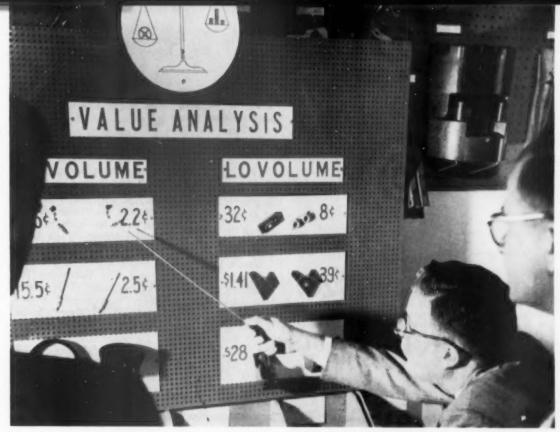
His definition of value analysis is a broad one: Value analysis is the study of the relationship of design, function, and cost of any product, material or service with the object of reducing its cost through modification of design or material specifications, manufacture by more efficient processes, change in source of supply (external or internal), or possible elimination or incorporation into a related item.

Note one thing in particular about this definition. The word purchasing isn't even mentioned. Why? Because value analysis is not a purchasing function in the same sense that the buying job is. Value analysis can and should be performed on any item whether it's purchased or made in the

This broader concept of value analysis is now being put into practice in several companies. It's helping to change the basic nature of the purchasing function. Traditionally, purchasing has been regarded as the focal point of all relations with outside suppliers. The new approach is to regard purchasing as a central watchdog on all materials costs.

Here's how this new approach is being applied in one big multi-plant company. Each manufacturing plant is treated as a separate business. It "sells" its output to the corporation's assembly plants and is treated just like an outside supplier by purchasing. Like an outside supplier, the manufacturing plants' selling prices must be competitive and are subject to review by value analysts. The plants are visited regularly by both buyers and analysts and no one in purchasing hesitates to make suggestions for improvement. Thus, purchasing performs the "watchdog" function directly or indirectly on practically all expenditures in this billion dollar company.

But you don't have to work for a big multiplant concern to apply the broader concepts of value analysis. It's being done in relatively small companies. In one of them, value analysis is a cooperative effort under purchasing's leadership. Serving on its "cost reduction committee" are representatives from product engineering, manufacturing engineering, cost estimating, and pur-



The peg board demonstration is a vivid and compelling method for showing what value analysis has done—or can do. This is part of a display in General Electric's Value Analysis Services headquarters in Schenectady, N. Y.

chasing. The chairman is the company's value analyst who reports to the director of purchases.

The committee meets weekly. On the agenda for each meeting is a group of parts or materials—both shop and purchased. Members of the committee don't limit themselves to questioning prices or costs. They go after improvements in value and utility as well.

Recommendations made by the committee go to the appropriate department for action. Every recommendation must be acted upon. If the department concerned doesn't think the suggestion is any good, it must say so to the committee. Purchasing's value analyst bird-dogs open recommendations and work with the departments to help effect the saving. Some value analysis programs take in only purchased items—this one also helps keep the shop efficient and competitive on captive items.

These two brief examples of successful value analysis programs make it obvious that value analysis is worth looking into. Here's what it should do for you and your company:

- 1. Reduce the cost of both purchased and manufactured parts and materials.
 - 2. Stimulate product improvement.
 - 3. Give purchasing a chance to increase its

effectiveness and thereby get greater recognition by top management.

All this sounds terrific. Unfortunately, getting a successful value analysis program going isn't easy. Before you can even hope for success, you should know how to:

- 1. Choose the right value analysis techniques.
- Sell management on a value analysis program.
- Break down internal resistance to value analysis.
 - 4. Select the right value analyst.
 - 5. Organize for value analysis.
- Make use of supplier know-how in furthering your value program.

The articles on the succeeding pages of this issue are designed to give you some ideas to help you get your program going. If the going gets rough, you've got this consolation: The editors of Purchasing know of no established value analysis programs that have been abandoned. The pay off is just too big. Who would throw out a deal that will return \$10 in added profits for every \$1 that's spent on it? That, according to the "dean of the value analysts," General Electric's Larry Miles is about what a successful value program should accomplish.



How to Analyze Component Parts

You can get big savings in analyzing components by using three different methods—the cost approach, the utility approach, and the commercial approach. Generally, you'll be using all three at the same time, but it's important to know when to bear down on a particular one for the greatest return.

THE BIG, spectacular savings from value analysis most often come on component parts for two very good reasons. First, component parts are the items most likely to be purchased in large quantities. Small unit savings can run up to big total savings. Second, most component parts are "custom-made" and can readily be changed in design.

Perhaps 75% of the total value analysis effort today is being devoted to component parts. As a result, there are probably relatively more opportunities for cost reduction in other areas. But the fact remains—component parts review is the most fertile field of value analysis.

There are three basic approaches to cutting costs of component parts—the utility approach,

the cost approach, and the commercial approach. In most companies, all three approaches will lead to lower costs.

The Cost Approach

Most people think a price is a fair one if it isn't too much higher than cost. With the "cost approach" to value analysis, you weigh the cost of every alternative. Within the framework of the design concept, you consider various processes and manufacturing methods. Your basic vardstick is the cost estimate.

Here's how this approach works in practice. For any given item, you first determine the economic methods of manufacture. (Don't overlook some that may seem "uneconomic" superficially; you might be surprised.) There's more than one way of making practically everything. Many metal parts can be either machined from bar stock or from rough castings. Others can be either stampings or die castings or molded from plastic. Even if the basic process is the same, the cost picture can change with tooling.

For each process that is worthy of consideration, you make up a detailed cost estimate. There should be estimates of material cost, direct labor for each operation, overhead, and profit. In estimating, the concept of a "representative efficient producer" should be used as a standard. That is, you would try to use labor and overhead costs that are reasonably typical of the industry.

Obviously, you must know the operations involved before you can even start to estimate. That's one reason why it's extremely important that both buyers and analysts be familiar with suppliers' manufacturing processes. To make a fair estimate, you should assume that the item is made by a process which would be used by a moderately efficient producer. Don't assume that the item will be made by the most efficient process available. If you do and allow an average amount of profit, your estimate will be mostly wishful thinking. The producer that is the first to automate, for example, can expect a betterthan-average profit for going to the trouble. And this is rightfully so since any innovation involves risk. So the best thing to do is process the job as though it were going to be made on equipment common to the industry.

One major weakness of the cost approach is that cost estimating requires so much skill. This is particularly true when the estimator is dealing with items that aren't even made in his own plant and for which he has little basic data. Even with these handicaps, however, a good estimator is usually amazingly accurate. Chances are you'll have to go outside purchasing to get someone with estimating skill. It is worth the trouble. An estimator can do more than just help select the most economic method of manufacture. His estimate also can be used as a target by buy-

ers. It can become an extremely powerful negotiating tool if used intelligently. And you get a chance to measure buyers' performance by their success in meeting or beating target costs.

The Utility Approach

Cost isn't, of course, the only criterion of value. In fact, it's much less important than utility. If an item isn't useful in some way, no one will want it regardless of the cost of making it. The search for greater utility is really the most interesting phase of value analysis. The idea is to decide what function you want the part or product to perform. Then figure out how it can be done better at lower cost.

The utility approach to value analysis can be called "economic engineering." It's concerned with cost and with design. Unfortunately, good product engineers don't always make good "economic engineers." Product engineers, by training, strive to make products better and better from an engineering standpoint. "Economic engineering" strives to make them have greater utility per unit of cost. No one but a frog will pay a premium for a pen just because it will write under water.

Almost anyone can practice the utility approach to value analysis—buyers, suppliers, engineers, manufacturing men, etc. In some cases, ideas come directly from working with the product. Almost as often, they can come spontaneously in "brainstorming" sessions or more formal value analysis meetings. Excellent case histories of applications of the utility approach are found in the "Component Parts" section of this issue.

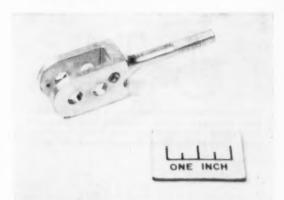
The Commercial Approach

In the "cost" and "utility" approaches to value analysis, the purchasing man doesn't have too many natural advantages over those with other backgrounds. His imagination and cost consciousness are probably offset by his relative lack of design know-how. The "commercial" approach to value analysis is concerned with quantity ordered, standardization, source selection, etc. Needless to say, in this area, the purchasing man has no real competitors. He's in a class by himself.

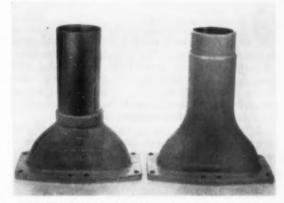
Many veteran purchasing men could quite rightly claim that the only thing new about the "commercial approach to value analysis" is the name. They would be correct. The techniques aren't new. Only certain applications are—including the way various approaches to value analysis are combined in actual practice.

In the "commercial" approach, you adapt the principles of the "cost" and "utility" concepts to the realities of the business world. For example:

1. Suppose a fractional horsepower motor is a component in your product. If a given type 15/64 hp motor just meets specification, then that's the



This part, machined from a forged blank, was being bought by General Electric's Evendale, Ohio, plant from an aircraft quality machined parts source. Quantities were small and the unit cost high. A supplier was found who was producing a similar part as a standard item—and supplied the part to GE's print by reworking one of their standard parts. The unit price is now only 27% of the previous price, and no special tooling is required.



Caterpillar Tractor decided to change to a one-piece iron casting for this exhaust pipe "Y" joint. The former arrangement was a welded unit of steel casting for full production. The move cut the cost of this item by 30%.

motor you use—according to a strict cost approach to value analysis. When you get to the commercial approach, you will undoubtedly rule out the 15/64 motor and use a ¼ hp job instead. The reason, of course, is that ¼ hp is a standard—and probably made by your vendor for dozens of other customers. As a result, it will be less expensive—even though the smaller 15/64 motor should be cheaper from a strictly engineering point of view.

2. Suppose you discover you're using a machined casting that is much heavier and more costly than the actual functioning of the item warrants. Following the utility approach, you recommend that the part be made lighter to reduce cost. In this case you're wrong. It's true

Equal or Better . . . at Lower Cost





This push button was made as a screw machine part, Research among suppliers turned up one who could cold head the part from aluminum wire. Cost of the item dropped from 19¢ to 2¢.





Readily available zinc die cast nuts were successfully substituted for acorn brass nuts turned out on screw machines. Use of a standard reduced cost from \$12.24/M to \$5.76/M.





This machined clamp bar cost 32¢. The design was changed so that the item could be made from a stamping with two nuts resistance welded on. New cost: 8¢, plus \$350 for tools.





A rolled thread specialist studied this steel J-bolt—suggested the words "cut thread" be removed from the drawing. The part is bought now for 1.5¢ as against 11.7¢—an \$80,000 saving.

the extra bulk isn't needed for functional purposes, but it permits the part to be made more cheaply. With the extra bulk, the vendor can machine it with the same tooling used for similar parts. Since volume isn't too great, the saving from the lighter design would be more than offset by the added tooling expense it entails.

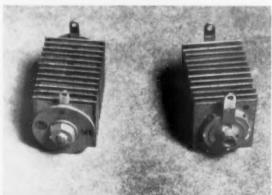
In practice, obviously, value analysis efforts are never broken up into three separate phases—cost, utility, and commercial. The three are used simultaneously by most analysts. They vary in relative importance with the products being analyzed. The commercial approach is always extremely important on purchased items however. It should play a big role in analysis of

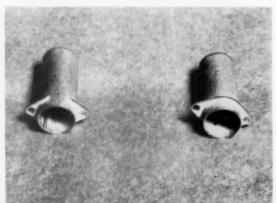
shop parts—particularly in "make or buy" studies. But often it is subordinated in such cases simply because important executives refuse to recognize it. By the same token, when engineering dominates an organization, purchasing and manufacturing don't get much chance at the cost and utility approaches.

As we will see in the two succeeding articles, the three value analysis approaches should not be confined to components. They can be used—sometimes with spectacular results—on practically everything that's purchased. The utility approach is particularly important when analyzing materials while the commercial approach dominates in the analysis of MRO items.

Stud mounted rectifiers like the one at left were used on a number of items made by General Electric's Specialty Control Department, Waynesboro, Va. It was found that tube mounted rectifiers could be used if the method of mounting were changed. Mountings were changed on a number of rectifiers of this type, with a saving of 29%.

The Specialty Control Department also used a tube and bracket assembly to enclose an aircraft relay. Holes in the bracket are used for mounting purposes. A major portion of the cost involved alignment of the brackets. The bracket is now made as a single piece. The alignment problem has been eliminated and the new part costs 50% less.







How to Analyze Materials

M ATERIALS are no harder to analyze than components. However, different techniques must be used. Unlike components, the prices of most materials are set by the market. Only rarely can any one buyer influence them substantially. Nor is there much point to the buyer bothering about the cost of production of a given material. Unlike those of component parts, prices of individual materials often have only an indirect relation to cost of production.

Even if a buyer thinks the profit margins of certain producers are too high, there isn't much he can do about it. By the same token, the buyer of material sold on the open market shouldn't get concerned if the price is so low that many producers are losing money. The impersonal forces of the market will correct that in due time. When buying materials traded on an organized market, it's sound policy to buy at the lowest possible price. This isn't, of course, necessarily the case with component parts.

Even though there's relatively little opportunity for price negotiation in buying materials, there's still a superabundance of opportunities for profitable value analysis. Shrewd buyers can save by:

Being alert to market fluctuations.

Making long range forecasts of price and availability.

Substituting lower cost or "higher value" materials.

Standardizing on a limited number of types and sizes.

Carefully analyzing the price structure of the commodity.

Checking related purchase costs—shipping, packaging, etc.

Are You a Gambler?

Although most executives would deny it, any company carrying an inventory is gambling that future price changes won't force it to liquidate at a loss. The risk varies, of course, with the commodity and the product. One of the most volatile before the advent of synthetic was natural rubber. Whenever the bottom fell out of the crude rubber market, every member of the tire industry suffered serious losses, and a few even got pushed into bankruptcy.

Fortunately, most manufacturers don't use very large quantities of commodities that are extremely volatile price-wise. However, intelligent recognition of the speculative element in any purchase that isn't immediately re-sold can

Substitution is one of the more dramatic phases in saving on materials—but it's not the only one. Analyzing for value in materials also takes in long range forecasting, standardization, market studies, and attacking related costs. help you make money. And the P. A. who ignores market fluctuations will inevitably lose money for his company (unless he's awfully lucky.) For example, there's almost no risk in assuming that steel prices will go up next month. Inventory policies should take this price rise into account and steel stocks should be heavier than usual.

In some cases, it takes keen analysis to spot a turn in the market. But there are tremendous opportunities for profit. For example, just a year ago, copper was at a modern record high of 46¢. If you, as a copper buyer, had moved to reduce your inventories to minimum levels, you would have made a lot of money for your company. But if you were wrong, you could have lost a lot of money. Deciding you were not a "speculator" and refusing to cut inventories would have been just as much of a mistake.

Fortunately, the price trends of many commodities are more predictable than that of copper. The PA that doesn't take advantage of them is foolish. For example, if every company in an industry announces a price increase effective a month hence, you don't have to be an expert crystal ball gazer to lay in a month's extra stock. By the same token, you should fight to keep stocks at the minimums consistent with economic order quantities when you're reasonably certain prices will either stand still or advance.

Keying buying policies to future price trends almost automatically solves shortage problems. When materials get tight, their prices go up. If your inventory is at a maximum then, you're in an ideal position in every respect. On the other hand, when materials are abundant, prices weaken and you "win" all the way around with minimum inventories.

It's tough to predict prices a year or two ahead. But it's often easy to predict what relative prices will be twenty or thirty or fifty years from now. To do it, all you've got to do is examine the basic supply and technological situation in the industry. Take fuel as an example. Usage of fuel oil and natural gas is growing at a tremendous clip and supplies (though large) are definitely limited. Coal usage is growing more slowly and supply, on the other hand, is almost unlimited. Presumably, there is also greater room for technological improvement in coal production than in natural gas or oil production. Thus you're led to conclude that the cost relationship between coal and competing fuels will change in the future. This doesn't mean that you should stop buying fuel oil. All it might mean currently is that when buying new heating equipment, you keep the possibility of a future switch to coal in mind. This same approach can be applied to any other competing commodites that you might use. For example, copper vs. aluminum; aluminum vs. magnesium; steel vs. aluminum and plastics,

Use the Material that Costs Least

Long range supply considerations may well influence choice of one material over another. But advantages from shorter term substitutions certainly shouldn't be overlooked. In some cases, a switch from one material to another is justified if a price differential of as little as 1¢ per pound lasts for just a few months.

Caterpillar Tractor switched from a welded assembly to a malleable iron casting for this tractor choke and throttle bell crank. A bronze bushing had been used to prevent corrosion between the unit and the steel pin. By chrome plating the pin, Caterpillar eliminated the bushing, since the plating did an excellent job of preventing corrosion. Over-all saving: 65%.

Steering clutch spring sleeves for Caterpillar tractors were made of seamless steel tubing, cut to size. They had a 5%" bolt passing through, so the inner diameter had to be held to close tolerances and be free from burrs, etc. A welded tubing unit, flash removed, was developed. It was found acceptable and a 25% reduction in cost was achieved.





Price per pound isn't paramount, by any means, when considering materials substitutions. Polyethylene tubing costs more per pound than copper tubing but it's actually cheaper. The reason of course is that the cost per foot of polyethylene is lower.

The newer materials usually offer the most opportunities for new cost cutting applications. One analyst makes a "mental review" of applications for each new material development he reads about. Any potential applications with promise are investigated. So far about eight investigations out of ten have been profitless; but the payoff on the successful ones has made the entire effort more than worthwhile.

Standardization Isn't New

PAs have been saving with standardization for years and yet there are as many opportunities to save with standardization as there ever were. The reason is simple: everything that's standardized is almost always, to some extent being "unstandardized." To clarify this, suppose that the number of types and sizes stocked of a given material was cut from 20 to 5. A legitimate need will probably be found for a sixth type in a year or so; later a seventh will be added; then an eighth. Eventually, "legitimate" increases will carry the usage right back up to 20 types and sizes.

A big part of the "unstandardizing" process is economic at the time. A temporary increase in usage or a change in price can make it worthwhile to deviate from the limited standard. Some-

A Closer Look at Materials . . .

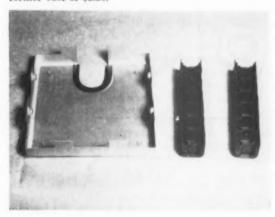
brought about substantial cost reductions for a well-known aircraft firm. The director of purchases tells the story this way:

"Certain requisitions specified first grade hard maple, select K/D S2S1E, to closer than standard tolerances. After studying the requirements of the job, we urged a change to select fir to standard tolerances, with a gross saving to date of over \$82,000. After deducting the cost of milling in our own shop, the net saving is still in excess of \$75,000.

"Specifications for plastic tubing called for a manufacturer's standard number. We learned that the basic material was cellulose acetate butyrate, which the manufacturer secured from a basic producer. By going to other customers of the basic producer, we secured approval of a substitute (actually the same material) at a saving of 63¢ per foot.

"Original specifications for certain glider type plywood requirements specified AN-NN-P-511. We analyzed the requirements and concluded that five-ply exterior grade (at a saving of \$63.86 per hundred square feet) would do the job. After testing samples, engineering approved. Total saving to date: over \$95,000."

The metal terminal cover at left was formerly used by General Electric's Specialty Control Department to enclose two terminal boards mounted on an aircraft voltage regulator. Investigation showed that two molded rubber covers would perform the function at a cost of \$1.14, a 48% reduction over the former cost of \$2.20.



times if the economics are favorable long enough, the deviation becomes the new standard. But the old standard item is rarely if ever abandoned except in standardization "drives." That's why standardization effort can profitably be made almost every time a requisition is issued.

Analyze Each Element of Cost

Closely related to standardization is analysis of the price structure. With most commodities, the bigger the quantity purchased, the lower the unit price. One of the major benefits of standardization programs is that they help increase purchase quantities.

With some commodities, about the only way you can reduce the unit price is by increasing the quantity purchased. With others—steel being a good example—the pricing structure is more complex. A good steel buyer can make all sorts of saving by knowing the ins and outs of steel's price structure.

To analyze steel (or any other material with

a similar price structure), here are six rules you should follow:

1. Look for some other material that will do as good a job cheaper. (The odds are heavily against you here but it's certainly worth a try).

2. Make sure you're buying the lowest cost type of material. (e. g. if you're using strip steel, would it be cheaper to buy sheet and slit it?)

3. Buy the minimum quality for the job. (If you don't need drawing quality, why pay for it?)

4. See if you can eliminate a fabricating operation by buying a higher cost material. (Prepolished stainless sheet, for example, reduces hand polishing in the shop).

5. Don't overlook a lower cost source for the material. (Possibilities include using offal, buying from companies that will "forget" to charge

certain extras, etc.)

6. Look for savings by buying the material in a more basic form. (Some companies claim big savings by doing their own pickling and oiling of steel sheets and plates; others prefer to buy strip and fabricate their own tube rather than buy semi-finished tube.)

Don't Forget Related Costs

The cost of some materials is more than doubled by shipping and/or packaging charges. Fortunately, there are plenty of opportunities to cut such charges if enough perseverance and imagination are applied. The best way to approach these charges is to make it your objective to get the material from the vendor's plant to its ultimate point of use in your plant as cheaply as possible. With this approach, you won't be cut-

ting packaging cost by 50¢ only to increase internal handling cost by \$1.00. Here are some avenues to explore:

1. Ship by barge whenever possible. As a rule, the reduction in cost will more than offset any increases in inventory that might be entailed or any special arrangements that must be made to accommodate water shipment.

2. Keep LCL and LTL shipments at a minimum. Mixed cars and pool cars are two ways to do this. Sometimes it even pays to carry bigger

inventories to cut shipping expense.

3. Don't give up looking for lower rates. Here is where your traffic man comes into his own. Analysis of freight rates is an art in itself and

the results are sometimes amazing.

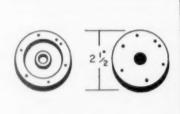
4. "Downgrade" your packaging whenever possible. As a rule, wooden boxes and barrels cost more than those made of corrugated. Paper bags are cheaper yet. And the ultimate is bulk shipment. The cost of the package itself doesn't give the final answer, of course. Durability, handling, etc. must also be considered.

5. Don't ignore handling costs. Packaging changes that permit material to be handled more easily by your own plant personnel are often economic even though purchase order costs are

higher.

There are, of course, more than five ways to cut packaging and shipping costs. The shrewd purchasing man makes use of specialists. He goes to the company metallurgist for ideas on materials specs. He consults with the packaging engineer on his specialty. The modern executive—purchasing or any other field—doesn't hesitate to use the talents of the specialist.

A Switch in Material



. . . from machined steel to an available aluminum disc, drilled, for this dial hub

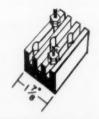
SAVED: \$1.14 per item



. . . from aluminum in this special knob to a standard plastic-metal unit

SAVED: \$2.00 per item





. . . from machined asbestos to molded porcelain for this terminal block

SAVED: \$2.39 per item



How to Analyze MRO Supplies

Your dollar volume of MRO purchases may be relatively low—still the chances for saving are many. But you need an orderly approach to select the best value targets among the thousands of items you buy. Here are nine practical steps you can take.

NDUSTRIAL purchasing departments handle more maintenance, repair, and operating supplies than anything else. In some departments, 90% of the purchase orders typed are for MRO items. Even though they often comprise only 20% of the department's dollar volume, they're extremely important costwise. And, contrary to what many scoffers think, there's no end of opportunity for saving through value analysis on MRO.

In many respects it's easier to save with value analysis on MRO than on components or materials. In the first place, the techniques of analysis are simpler and easier to apply. A "common sense degree" is as good or better than any other when it comes to cutting costs of MRO items. Secondly, fewer departments get in the act on MRO. As long as you keep the user happy, there's no limit to the changes that can be made. It's different on production parts and material. When the end product is involved directly, almost everyone but the sweeper has some say in the final decision.

Getting Started

The toughest thing about analyzing MRO is literally deciding on what to analyze. You have thousands of different items you could look at. The trick is to select the most promising. One way to do it is to survey requisitioners and ask them to select the items they are *most* satisfied and *least* satisfied with.

One successful analyst used this approach to get leads on promising projects. When requisitioners were delighted with an item, it occasionally meant that salesman was doing a good "back door" job and an average product was being sold for greater-than-average price on a personality basis. Or it could mean that the requisitioner got a product that was basically too good for the application to which it was being put. Most items in the "most satisfied" category were left untouched by the analyst, of course. After all, he wants the requisitioners to be happy—as long as it isn't costing too much!

"Least satisfactory" items all warrant investigation. Everything should do the job for which it is purchased. If it doesn't, purchasing should find out why. In some cases, purchasing paid for a higher quality of merchandise than what was actually received and accepted. In other cases, the wrong item was being bought for the stated

When you're working with MRO items, be selective or you'll find yourself spending time

on items that just aren't profitable. If, for example, you buy one steam trap every few years, there's not too much point in making an elaborate study of steam traps. The savings won't offset the value of the time that has been spent in making them. In this case, normal good buying practices are entirely adequate.

A Practical Program

In one company with a highly successful value analysis program on MRO, practically the entire effort is devoted to the 20% of the items that comprise about 80% of the dollar value. Periodic special studies are made of the high dollar value items. One over-all review of drills and reamers helped reduce costs \$9,000 per year. Another on oils saved \$17,000 per year.

These substantial savings were, the company reports, remarkably easy to achieve. The only qualities needed were "an orderly approach and a lot of 'horse sense'" says the company's PA. Here's what the "orderly approach" involves:

Accumulate Purchase Orders. Save copies of all orders issued in the last six months for the commodity you're going to analyze. Break these

Value Analysis Applies to More Than Production Buying

Marager of Purchases C. S. Perkins, Union Oil Company of California reports that his buyers have done excellent work on value analysis, despite the fact that purchasing at Union is on an MRO basis, rather than for line production.

He offers these two examples:

"1. Our marketing department standard called for an indicating light on turbine pump dispenser units. The light was installed by the contractor at the time the service station was built—at an average cost of \$20 per station. A buyer worked with gasoline pump manufacturers on incorporating the light as an integral part of the unit. All manufacturers now provide such a unit with U.L. approved light at no extra cost. So \$20 is saved on every new or remodeled service station.

"2. Our refinery was using stainless steel burner nozzle tips purchased from the original manufacturer to the extent of about \$6,000 annually. Our buyer persuaded the refinery to try out a hexagonal head, ½" Type 304 stainless steel pipe plug bored with a 9/64" orifice in the center. This was rejected by the operators, as the head projected beyond the area of the round plug, creating turbulence in the heater. Square head plugs were tested and work entirely satisfactorily. Result: an annual saving of \$4,590."

orders down into some sort of order. Use manufacturers catalogs as a guide to the most efficient way to segregate the commodity by type, size, and specification. Be sure to put all orders for identical items together.

Study the Product. If you don't know enough about the commodity you're analyzing, then read up on it. Visit one or two vendors' plants if they're conveniently located. Familiarize yourself with the industry's pricing structure. You should know exactly where quantity price breaks occur and also have a feel for the state of competition in the industry.

Study the Application. In most cases, of course, it's rather obvious how the commodity is being used. Hand soap is used for washing the hands, etc. But if you're buying three different grades of hand soap, you might want to find out why. Or, if hand soap is being used for some purpose other than washing the hands, that's also worth knowing.

Analyze Frequency of Purchase. In many cases, you can get a more economic order quantity without using any formulas. In general, if you're issuing more than one order a month for any MRO item, you should start grouping your orders. In smaller companies, this minimum might be once every two or three months. Also, if you're ordering similar items on separate orders, you might consider grouping them. You'll probably even discover some items that you're buying too seldom. In very few cases does it pay, for example, to buy a year's supply when the value of the order is much over \$100.

Check the Price Trend. Comparing prices of like items can lead to a wide variety of savings. If prices tend to fluctuate seasonally, you might want to change the pattern of purchase. If one source is consistently cheaper than another, for identical items, your action is rather obvious. If the price for one particular grade or size seems out of line with all the other grades and sizes bought, there are a number of possible solutions. You might look for a new source for that particular grade or size. Or you might see if you can get along without that particular grade or size. In some cases, you'll find you can.

Investigate New Products. In a few cases, you'll find that a new product has been introduced that will change your whole pattern of purchase. If you're reviewing your purchase of brooms, for example, you should be sure to check powered floor sweepers. Or if you're reviewing replacement motors for machines, you might want to check the advantages of a d-c power supply. A "new" product need only be new to your company; it need not be new to industry in general, of course.

Review Source of Supply. Usually it's economic to buy MRO items from an industrial distributor. Occasionally—particularly if usage is heavy—it pays to buy direct from the manu-

facturer. In practice, you'll rarely want to switch basic source of supply (from distributor to manufacturer or vice versa). But you'll certainly want to take a close look at how business is dealt out to directly competing sources. If all your local vendors are competitive with each other, you might want to check an out-of-town source. This is particularly true if you live in a smaller city where there are but one or two local sources. One buyer cut his lumber costs 15-20% with this approach. Two individuals owned every lumber yard within 50 miles of the buyer's plant. With this local monopoly, it paid to have lumber shipped in from a city 65 miles away.

Work Out Special Deals, One of the easiest ways for a big multi-plant company to save money on MRO is by setting up contracts to cover the corporation's total usage of a given commodity. Dozens of big firms buy lubricants and light bulbs on a national contract basis. Fuel

contracts are also guite common.

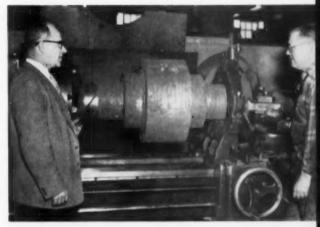
A similar time-tested technique for cutting costs is a simple matter of negotiation and verbal agreement. With it, you agree to purchase all or a given percentage of your total requirements from a given distributor. In turn, the distributor agrees to certain price concessions. This technique is particularly useful where there's little or no price competition. Included would be products restricted by "fair trade" agreements and those usually made by a very limited number of manufacturers. Distributors are usually much more responsive to competitive pricing pressures on MRO supplies than manufacturers—so it will be easier to work out a satisfactory arrangement with them.

Make Periodic Studies. It's difficult for anyone to control usage of many MRO items. And
there is no foolproof control at the user's end.
The supply of company pencils drops when the
sons and daughters of employees start back to
school in the fall. There's always some shrinkage
on portable tools. Purchasing is one of the best
vantage points to spot a usage trend that is getting out of hand. Comparative studies on two supplies will often provide a clue. If there has been
a rise that isn't justified by additional output,
some investigation is needed.

Other Techniques Also Apply

The company program described above is a good one but it's not the only one. The same general principles of value analysis apply to MRO as much as they do to production parts and materials. You can read the preceding articles on analysis of component parts and materials with profit even if you're interested only in MRO. The best value analysis program is one that's custom-made. All the articles in this issue are designed to give you ideas to help you develop a program to suit your specific needs.

The number of value analysis techniques are actually limited only by the ingenuity of those





Above—T. C. Lavinder (left), purchasing agent, Division of Materials, Wilson Dam, and W. G. Lucas, machinist watch a rough cast guide roll, used in supporting a nodulizing kiln, being machined to shape. Purchased as a repair part, it cost approximately \$2180. Bought as a rough casting and machined in the shop, it costs about \$600.

Below—Mr. Lavinder and O. E. Elliott, chief, Warehouse Section, Division of Chemical Operations, examine a bronze bearing for a rotary kiln. Value analysis helped locate a supplier who can make the bearing for 45% less than the equipment manufacturer charges for it.

applying value analysis. One analyst, who wishes to remain anonymous finds a Sears. Robeuck & Co. catalog very helpful when reviewing certain MRO purchases. Sears rightly deserves its reputation for low retail prices. This analyst figures that whenever his price isn't at least 15% below the Sears price, investigation is definitely called for. Another analyst who works in a big defense plant has access to the price list of the General Services Administration. He considers the GSA price par and trys to keep under it as much as possible. However, as in golf, the man doing the work is more important to success than the tools that are used.



How to Analyze Price Increases

Only oldtimers in purchasing can remember buying in a period when prices weren't moving upward. Many economists predict that "creeping" inflation will be with us for a long time to come. In one respect, purchasing men should rejoice at this outlook. Everyone, including purchasing, is hurt to some extent by inflation. But, for purchasing, slowly rising prices do present challenges and opportunities. The pressure of mounting costs can often only be partly relieved by price hikes. As a result, there's a big squeeze on profit margins.

Longer term analysis projects involving design changes, new materials, etc. all help bolster profit margins. But the first lines of defense are the industrial relations at the bargaining table—with management negotiating with labor and the PA negotiating with suppliers.

Are Prices Fixed?

Salesmen often wonder why purchasing agents should ever question price increases. After all, their companies are not out to cheat their customers and wouldn't ask for unjustified increases. This is quite true in practically every case. But that doesn't excuse the P.A. from vigorously taking exception to any price he believes is out of line. The fact is that what might be a perfectly legitimate price adjustment to the seller can readily be an unjustified price hike to the buyer.

On items where there is a large number of buyers and sellers, the market reflects the relative desires of both buyers and sellers. The result is economically a fair price (even though some individual buyers or sellers will undoubtedly think it's too high or too low).

Take the case of a part made to print. In this case, there is one buyer and one seller. There is no impersonal market to arbitrate differences of opinion on prices. In terms of "justice" both

buyer and seller can be right. To see why, consider this hypothetical case:

The vendor signed a new union contract in which all workers got a 5% raise. This additional cost was just too much for the vendor. His return on investment was already inadequate and his costs seemed destined to rise further since materials were continuing to go up. The vendor requested a 5% price increase. He pointed out to the buyer that this was fair since his labor costs had gone up.

The buyer said no soap. In the first place, he said, 5% was too much for the labor increase. He pointed out that, at best, only about half of that particular vendor's costs were wages and salaries. On that basis, a 5% wage increase would mean only a 2½% cost increase. Furthermore, the buyer could hardly compensate the vendor for higher anticipated costs of materials. The buyer pointed out that his company couldn't recoup anticipated higher expenses from its customers so why should it pay them to suppliers. Nor was his company contemplating increasing prices; as a result, even a 2½% price increase couldn't be passed through to the ultimate consumer. Therefore no price increase in the consumer.

consumer. Therefore, no price increase was justified. Both buyer and seller can marshal legitimate and convincing arguments. Which will prevail? The answer depends upon bargaining skill and the state of the market. The latter, no individual buyer can influence significantly. With the former, it's a different story. Skill in bargaining is one of the qualities that separate the buyers from the clerks.

Much has been written about how a buyer with a "dynamic" personality can convince a supplier he should do almost anything. The popular image of a buyer is still, to some extent, that of a man bellowing at suppliers that prices are too high. A seasoned salesman doesn't find a loud-mouthed buyer too tough to deal with. The loud-mouth rarely knows what he's talking about and mostly just wants a little attention. So the salesman flatters him and indicates how impressed he is with the buyer's "skill" and "tough" negotiating. Then the salesman gets exactly what he wants.

Fortunately, the 1957 model buyer is a little more astute. He doesn't ask for anything unless he can back his request up with facts. Today's buyer applies value analysis to negotiation. The value approach is the planned approach. With it, you decide, in general, the over-all policy you're going to follow before any suppliers come after price increases. With the value approach, you decide in advance how much of a price increase you can realistically expect to pay and how you're going to go about holding increases to this bogey. To do this, you've got to make a careful analysis. You must consider the following:

The State of the Market. If prices in general are going up, you're going to be paying higher prices too. The BLS wholesale price index for your industry is a good indicator of the general price trend. For example, if you're in metalworking, you should know that the BLS index of metals and metal products is up about 6% in the last year.

Basis of the Increase. With most commodities vendors don't just announce a higher price with little or no explanation. There's almost always a stated reason. Some reasons like the need for "money for expansion" or "generally higher prices" approach being rationalizations of everyone's desire to make more money. Others like a "steel increase" or "labor increase" can more readily be analyzed. Try to get a specific explanation of why the price is being increased whenever possible. You might try a policy of "no explanation—no increase" on some commodities.

Cost Breakdowns. Some purchasing departments insist on complete cost breakdowns before they'll even talk about higher prices. Some companies (and this writer agrees with their point of view) think cost breakdowns are none of the buyer's business. They hold that a buyer shouldn't be interested in incurred cost but, instead, should consider what cost should be if the product were made by an efficient producer. The philosophy here is to stay away from any sort of "cost plus" approach to buying. It's a dangerous concept to accept. From a practical point of view it's always useful to know exactly how much it costs to make a given item. But experience shows that suppliers usually consider costs none of the buyer's business. Any cost breakdowns furnished under pressure are of little value; usually the only accurate segment is material cost and most suppliers don't object to disclosing that anyway. However, in a few cases, where the buyer is free to audit costs, the breakdowns that result can be very useful.

Specific Substantiation. There's certainly nothing wrong with asking a supplier to justify a price increase. If his announced reason for increasing prices is the same as his real reason, there is no reason why the supplier should be reluctant to substantiate his increase. For example if the supplier wants more money because

Control Costs All Along the Line

Close control of purchased parts at the TV-Radio Division of Westinghouse, in Metuchen, N.J., has been achieved by the establishment of the post of Cost Control Coordinator in the purchasing department.

Highlights from a summary of the cost control function in the division indicate how the scope of analytical buying can be broadened far beyond the confines of the purchasing department:

"The cost control coordinator works closely with engineering on new designs in an effort to reduce costs as much as possible at the design stage. In order to be useful at this point of design, he must keep abreast of the latest technical advances in our field and should have enough technical background to recognize worthwhile items from both a cost and engineering point of view.

"Once the profit picture per TV or radio model is set up, policing action is required. Just as industrial engineering polices its labor costs, so must purchasing police material prices . . . it is imperative that the coordinator resist all increases in cost both on traveling requisitions and price change notices (all of which flow through him).

"If increases are accepted (after every cost increase has been vigorously resisted by the buyer—and cost control coordinator and purchasing agent when necessary) we ask the supplier for his ideas on redesigning the item to reduce the cost to eliminate the increase.

"The cost control coordinator is a member of the engineering change notice committee and is responsible for the purchasing cost and timing of these changes.

"He is responsible for all costs coming out of the purchasing department, whether they be material costs or tooling costs (actuals or estimates).

"The cost control coordinator is on the constant lookout for new items. He screens out those which would waste engineering time. A New Products Report is issued, on each item, to the chief engineer and to all engineering section managers and interested departments. When all reports and comments flow back, judgment is made whether or not to incorporate the item into production."

steel has gone up, he should not object to giving the buyer the details of his new and old material costs. It is relatively easy to check out most increases in material cost. With steel, for example, you can get on the mailing list of a few major mills and be kept posted. To verify labor cost increases, you find out how much a union contract settlement amounted to. Your industrial relations department can get these figures for you with comparatively little effort.

Realistic Limits. There is a danger in discussing cost with a supplier. As soon as you ask a supplier to verify an increase, you're tacitly agreeing to pay it if it should be proved "legitimate" by the cost approach. In many cases, this is what you will wind up doing anyway so there's no harm in attacking the increase from the cost standpoint. However, there are exceptions—and they are important. It's not inconceivable that you'll wind up with a net reduction for a part on

which a supplier wants a price increase.

Competitive Situation. If one supplier of an item wants a higher price when there are a half-dozen qualified vendors available at lower prices, there won't be any increase. This is true even if costs are advancing. So on any item you're not sure of, be sure to get competitive quotes. This should be done even on items where expensive tooling is involved on certain occasions. Some vendors, once tooled up, are prone to think they will keep a job regardless of what they do. It doesn't hurt to keep them from getting complacent.

Learning Curve. Obviously you can't shift jobs from vendor to vendor with every little change in the market. You spend a lot of time selecting a vendor in the first place mainly because you want to prevent being forced to make changes after a job is in production. When you give a vendor a job the first time, he expects to do it at a

One Way to Analyze Price Trends

Here is a simplified version of how the purchasing department of Ford Motor Company of Canada, Limited, uses analysis to know if the prices it pays are following the market trend:

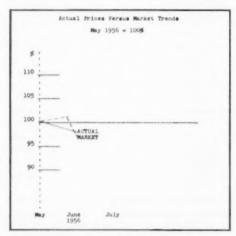
Assume for purposes of the example, that a motor vehicle consists of only three parts—using rubber, steel and copper. A market trend chart is prepared from data taken from a monthly report on prices issued by the Dominion Bureau of Statistics (roughly comparable to the U. S. Bureau of Labor Statistics.)

The purchasing department selects the commodities related to the products and materials used in Ford vehicles. Using a weighting factor it arrives at a composite index for all parts. The weighting factor is developed from the value of the material used in the part for the vehicle.

Example:

Commodity	Weight	May	Index - %	
			June	July
Rubber	6	196.4	196.8	200.5
Steel	15	216.8	218.7	218.8
Copper	4	426.5	422.8	369.1
Composite	25	245.5	246.1	238.5
Based on April '56		100.0	100.2	97.1

Steel, for instance, at a unit of 15, is a value in relation to the total composite cost of material at 25. When the steel price—or other price—changes, purchasing develops and reports a new index movement indicator. It also compares the actual index with the market index, selecting a suitable base or starting point.



There's nothing like visual comparison for good control. The chart is particularly useful when the trend of company prices varies significantly from the general market trend.



Buyer and seller should have a mutual advantage in improving quality and fighting rising costs. Frequent exchanges of ideas help both achieve their goals. Shown here is a group at one of Northrop Aircraft's Vendor-Vendee Product Improvement Conferences.

profit. In some cases, he doesn't make money on it, of course. But in most cases, he either makes the profit he figured or does even better. The second time that vendor makes the item, he's going to profit from his earlier mistakes. His true costs will almost inevitably be lower. In the aircraft industry-where job lots are small and parts are complex-it's estimated that each succeeding lot costs 80% as much as the lot that preceded it. Regardless of the industry, the maxim that you "learn from experience" applies. You have good reason to expect lower prices with experience as long as basic labor and material costs remain unchanged. In many cases, the improvement from experience will offset increases in basic costs by a wide margin. The result: a reduction in price.

Change in Distribution. Suppose a vendor's price increase is perfectly justified by higher cost. And you have no way to beat the increase through competition, application of the learning curve principle, etc. Do you then accept the increase? Not necessarily. Look at changes in volume of business first. If the part is being made in greater quantities than it was at the time the original price was set, the vendor has experienced some unit cost reductions. Even if

this is not the case, you can induce the same effect cost-wise simply by relocating business. The idea is to let vendors quote on making a whole group of similar items in combined runs. Inevitably the "package" price is lower.

Other Analysis Techniques. In many cases, you'll pay a higher price for an item even after considering every technique considered here. If a vendor insists on a price hike—period—and you can't bring in lower cost competition, the only thing you can do (temporarily, if not permanently) is pay it. But you aren't licked yet. Items that have been going up in price are ideal ones to attack with other techniques of value analysis. Substitute materials may become economic. Investment in equipment to make it in your own shop may be worthwhile. A thorough search for new competitive sources may be justified. Design change should certainly be considered.

In many cases, there's no doubt you'll pay a higher price because a higher price is justified. You can never beat the market completely with value analysis. But you can blunt the effect of a generally rising market on your costs. This is particularly true with items that are "custom-made" to your blueprint. But, to some extent,

it applies to everything purchased.



Put Suppliers on Your Value

S HREWD PURCHASING agents were picking suppliers' brains long before the term value analysis was invented. Though the idea of getting help from suppliers isn't new, new techniques have been devised to help do the job more effectively.

For years salesmen have been selling purchasing agents and both have benefited. Now a new trend seems to be developing. Purchasing agents are trying to "sell" salesmen! They're feting them with lunch and drinks at "Supplier Days" and similar affairs. They're doing everything within their power to encourage vendors to develop ideas and products that they can buy. Many companies, in fact, are just as prone to remember suppliers at Christmas time as they are their own customers!

These programs to keep vendors happy aren't altruistic. To move forward, every company needs a steady flow of new ideas and new products. One of the biggest sources for them is the vendor. In a typical manufacturing company, about half the sales dollar goes to outside suppliers. In some industries, suppliers do more than half of the engineering for their customers. In every industry, they do a substantial portion. In the auto industry, for example, most of the credit for such developments as hydraulic brakes, power steering, automatic transmissions, etc. should go to suppliers of the auto companies. The auto companies and others have made money by accepting ideas that suppliers developed on their own initiative.

More and more purchasing agents are asking themselves:

If we can make money for our companies by passively accepting ideas developed by suppliers strictly on their own initiative, can't we make even more money by actively encouraging and stimulating suppliers' thinking? While it's true that the suppliers' profit motive will cause a lot

of suggestions to be made with little encouragement from us, it certainly doesn't hurt to make the process easy and convenient for them.

This dynamic purchasing theory is being carried out in practice in dozens of different ways. Some of the techniques used include:

1. "Supplier Days", in which vendors are invited to the plant for lunch, a tour of operations, and meetings with company management.

Product displays in the lobby or purchasing conference room in which all components are spread out so as to stimulate creative thinking.

3. "Cross fertilizing of ideas" by having suppliers visit the customer plant and vice versa with both groups asking for suggestions for improvement.

4. Mechanical devices, including supplier "suggestion boxes" solicitation of ideas for product improvement on purchase orders and quotation request requests, etc.

5. Programs calculated to increase the number of specialty manufacturers making routine sales calls on purchasing.

Supplier Days are good chiefly as vendor morale boosters. In themselves, they're probably less efficient than other techniques of supplier brainpicking. But they do get the vendor in the mood—especially after he gets a free lunch, a tour of the plant, and hears company bigwigs tell him how important he is.

"The only trouble with Supplier Days," complains one purchasing agent, "is that everyone expects too much from them. Vendors are told that they're 'members of the team' by our president and then we turn around and take something away from them and put it in the shop. Quality control and product engineers find the rate of rejections doesn't drop as a result of their speeches to vendors on the need for higher quality. We in purchasing find that it's rare that anyone can trace any specific cost reduction sugges-

Analysis Team

tion to a Supplier Day. Nor is there a discernible improvement in vendor delivery performance."

Companies won't be disappointed with the results of their Supplier Days if they consider them as just one phase of a bigger over-all vendor relations program.

Show Off Your Products

Hundreds of manufacturers have show rooms in which they display their finished products to customers. In some instances, these displays can be used to advantage by purchasing. This is particularly true when they're located near the purchasing office and when the product is so constructed that it's easy to locate all individual components.

In most companies, if purchasing wants a place to show off the stuff it buys, it must provide its own. Then the PA must decide whether it's really worth the trouble.

Dozens of PAs are convinced that it is. At relatively nominal cost they believe they can get a place where:

1. Buyer and supplier can physically review any part that is causing difficulty with respect to either cost or quality.

A vendor can review items being made by the shop or suppliers of other lines and offer suggestions for improvement in design or method of manufacture.

Buyers can see all of their parts together and can make ready comparisons of quality and price.

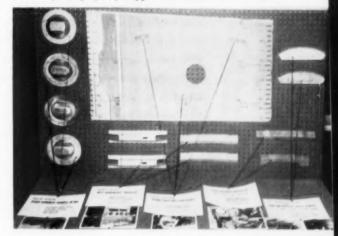
4. Proposed new vendors can look over items on which they might be interested in quoting.

Once they enjoy the benefits of having their own display rooms, purchasing departments have a hard time getting along without them. In most cases, however, the problem of giving them up just doesn't arise. Management becomes con-



"Dusty" Fowlkes, left, expert on specialty suppliers for GE's value analysis services section, confers with Jim McMasters, vendor's representative, on an idea that may help buyers in a number of General Electric departments.

Vendor-vendee product improvement meetings are an important activity at Northrop Aircraft, Inc., Hawthorne, Cal. This is one among the many "producibility" displays by suppliers at these conferences.



An Award of VENDOR VALUE conferred upon

in recognition of consistently helpful service and cooperation in the field of cost reduction.

The Purchasing Department of

makes this award in conformance with the principles appearing below.

"The Vendor's Know-How is the Buyer's Greatest Asset".

Date

Purchasing Agent

The tests of a VENDOR'S VALUE

- 1. He knows precisely how the customer uses his product.
- 2. He makes every effort to help the customer with standardization.
- 3. He tries to help customers cut costs by eliminating unnecessary features in his products.
- 4. He knows all his own capabilities and how they can help the customer.
- 5. He stays informed on and tries to top features of competitive products.
- 6. He tries to simplify his products before he's forced into it by the customer.
- 7. He stays informed on new processes and materials, and discusses them with the customer.
- 8. He tries to package his products in the cheapest and most efficient way.
- 9. He promotes the idea of blanket orders and other devices to help the customer cut costs.
- 10. He tries to give each customer the best possible price on his product.

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You Can Give Public Recognition To Cooperative Suppliers!

Here is a method for promoting greater teamwork between buyers and sellers for greater value: a special award to suppliers who have made important contributions to your cost reduction or value analysis programs.

THESE AWARDS ARE AVAILABLE, FREE OF CHARGE, ON REQUEST

A limited number of these awards has been printed on heavy stock, suitable for framing. You may obtain them simply by writing to Purchasing Magazine, 205 E. 42nd St., New York 17, N.Y., giving the name of the vendor or vendors who performed some meritorious service. The certificates will be filled in with the supplier's name and your name in attractive script, and returned to you. All we require is your assurance that the supplier has given you genuine help in your value buying efforts.

THIS IS A CHANCE TO BROADEN THE BASE OF YOUR VALUE ANALYSIS PROGRAM

Use of the Award of Vendor Value is tangible evidence that you want suppliers on your value analysis team. It will reward them for their contributions and inspire them to greater participation in your program. It is public acknowledgment of the fact that you are working together for better value.

WRITE NOW FOR FREE COPIES OF THIS IMPORTANT AWARD OF VENDOR VALUE

Simply send us the names of the vendors you feel deserve this award. We will fill in their names and yours, suitably inscribed, and send the awards to you, to be presented as you see fit. The award will be an enlarged version of the one at left, on finer, heavier stock. vinced that the savings produced by such an exhibit more than offset the cost of the floorspace. Purchasing isn't the only department that benefits either. It's very helpful to engineering to have all similar parts laid out on boards or tables. Standardization becomes considerably less painful.

Plant Visits Pay Off

There are a lot of plants with high cost manufacturing methods, sloppy quality control procedures, and mediocre engineering talent. But has any buyer ever talked to a salesman who didn't claim his company was tops in all three respects? That, of course, is the basic reason for vendor plant visits—to see with your own eyes what sort of job a vendor can do for you.

But if this is the only use you make of visits, you're missing a lot of opportunities to cut costs. Looking at jobs vendors are making for other customers can give you ideas on similar items you're buying. Examining vendors' facilities and equipment can give you ideas you might put to use the next time you get a requisition for a similar piece of equipment. If one of your vendors is doing something more efficiently than it's being done in your own shop, you're foolish not to pass this information on to your manufacturing people. On the other hand, if you notice that a vendor is doing something less efficiently than your shop, why not call it to his attention?

The most progressive approach to plant visits is to consider them a two-way exchange of ideas. Purchasing is the catalyst. It arranges for suppliers to see its plant and become familiar with its products. It encourages suggestions from vendors on any phase of company operations which they think could be improved. Purchasing also, of course, makes regular visits to suppliers standard practice. It wisely invites specialists from engineering and shop along on such visits. Both can pick up ideas applicable to their own operations and offer helpful suggestions to suppliers. All this sounds idealistic. It is. But, in practice, it seems that the more closely the ideal is approached, the bigger the payoff for all.

Gimmicks That Often Work

Fifty years ago if you suggested an employee suggestion box to a typical manager, he'd think you were an impractical dreamer who should be confined to the ivory tower of some college campus. Today, it's different. The factory without the employment suggestion box is the rare exception. A lot of hard boiled PAs might laugh at the idea of a vendor suggestion box. But in a few years, they could change their minds. The cost of box is nominal and the few pioneers that have put them up have found that the occasional suggestions they stimulate are more than worth the trouble. A more common gimmick that serves much the same purpose as the suggestion box is



Aerosol Techniques, Inc. has a novel plan for stimulating the fertile minds of suppliers' representatives—this simulated theatre ticket. The "tickets" have been sent to all suppliers, and are available in the reception room. Space is provided on the back for writing out "the big idea."

the statement on the quotation request. It's designed to encourage vendors to initiate ideas that cut costs. Typical of such statements is this one used by Ford:

We will welcome suggestions regarding design changes that you believe will facilitate the tooling or fabrication of the part or both. However, all such changes must have the approval of our Engineering Department and arrangements made to incorporate such changes on our blueprints because our purchase orders will specify delivery as per our blueprint.

The Ford statement seems to have brought results. The company has saved millions by incorporating design changes suggested by vendors.

Have you ever considered inviting vendors to your cost reduction meetings? A number of thoughtful PAs have considered this idea and rejected it. They fear that vendors would get too involved in matters that are none of their business, including competitors' prices, etc. General Electric has overcome this potential handi-

cap. Specialist suppliers invited to its value analysis seminars are on hand to answer questions but do not actually participate in the analysis of products. The suppliers are given a chance to explain their products as potential substitutes for higher cost items and are then available to coordinate quotations on particular components that interest the analysts.

Another company has gone much further then G. E. in getting suppliers in the act on value analysis. Suppliers whom purchasing thinks can make a contribution are invited to participate in the monthly "cost reduction meetings." Purchasing gets around the problem of how to prevent vendors from learning competitors' prices by simply not marking the prices on the items reviewed. When vendors are present, the meeting is devoted entirely to potential cost reduction through material substitution, design change, etc. Price analysis is done only after vendors leave.

A purchasing program is only as good as the suppliers it involves. Every PA recognizes this axiom but few are willing to do anything about it. One of the few is Herbert Essley, director of purchases and works manager of Taco Heaters Inc., Providence, R. I. Mr. Essley knows he can do a much better purchasing job if more top calibre are interested in Taco business. Therefore, he is quite frankly interested in publicizing the benefit of doing business with Taco. Recently he widely distributed a reprint of a magazine article describing Taco's purchasing policies.

A bigger company goes after the same objective with a slightly different approach. Its vice president—purchases considers himself to be sort of a "missionary" salesman. He travels around the country calling on companies that have never contacted his department for business. In his calls, he explains what he wants from suppliers in the way of price, quality and delivery. He makes a point of calling on companies who might be able to make products on which he feels there is inadequate competition or where he is not satisfied with existing sources of supply. No company with a good reputation is actually discouraged from quoting, however.

This vice president is too smart to over estimate the success of "missionary" program. His company is so big that if it improves over-all purchasing performance by as little as 10%, his efforts weren't wasted. The "90% or more" says the vice president, "comes from day-to-day contact between buyer and supplier."

GARDNER-DENVER AND THE STATE OF THE STATE OF

Gardner-Denver Company, Quincy, Ill. participates actively in the value analysis programs of many of its customers. The company has developed this attractive, table-top display for demonstrating and discussing its line of air tools at such meetings.

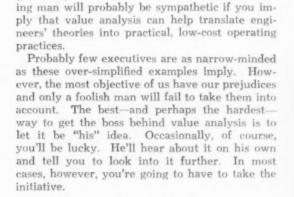




How to "Sell" Your Value Analysis

Program

Anyone from a department head to a janitor might suspect value analysis if he doesn't understand it. So a constant "missionary" effort is needed to show that everyone shares in its benefits. Wray Reger, communications expert on General Electric's value analysis services staff, here reviews stories and news items on value analysis that have appeared in internal GE publications.



gins and you've "made a sale." The manufactur-

SELLING top management on any new purchasing idea takes a little doing. In most cases,

top management isn't procurement-minded. It usually appreciates the value of good buying but is often extremely conservative on any new organizational concepts affecting purchasing. A lot

of top managers have backgrounds in sales and engineering-which don't necessarily produce the cost consciousness needed to appreciate the advantages of value analysis. Manufacturing, finance, or purchasing are more likely to produce

executives sympathetic to the value analysis concept. (There are, of course, many exceptions

Obviously, you can't re-write history. So you must adapt your strategy to fit the boss's particular prejudices. If the chief is basically a salesman, then the message that \$5-10 in cost reduction is the equivalent of \$100 in sales should strike home. If he's an engineer, the pitch might emphasize the product improvement aspect of value analysis. With both salesman and engineer, you can hit hard on the effect of value analysis on the product's competitive position. With the ex-controller, mention wider profit mar-

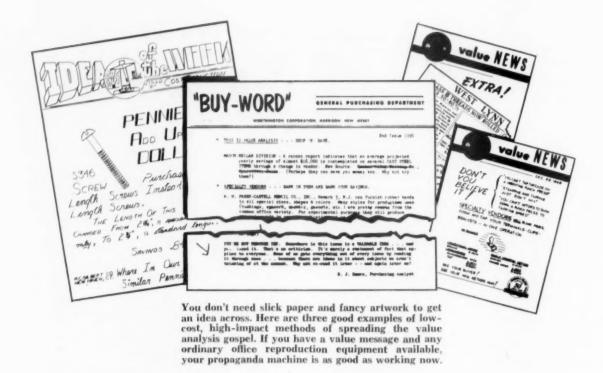
to this general rule.)

Four Approaches That Work

The most straight-forward ways to sell value analysis is the:

"After-the-Fact" Technique. With this ap-





proach, you don't waste time on any advance propaganda or get anyone else's O. K. You just go ahead. You decide on your program and incorporate it step-by-step. You might start with value analysis as strictly a purchasing function involving existing buying personnel and branch out from there. Act on the theory that everyone actually knows what you're doing and, in some cases, the program will almost automatically be accepted after it gains momentum. Low pressure "horn blowing" along the way doesn't do any harm, of course. In some cases, your program can be slowed down by budget limitations. Then you've got to change tactics.

Particularly helpful is the:

"Grass Roots" Technique. It always helps to have powerful allies when you encounter resistance to your ideas. It's also sound to convert potential resistors into allies long before it even occurs to them to resist. The people that are going to resist value are those who are going to be inconvenienced and those who (wrongly) feel that value analysis will "show them up" unfairly as being incompetent. Generally speaking, the lower you go in the organization, the more chance you have of meeting this resistance. In a lower echelon job, a man's concept of the organization can tend to revolve too much around his own job. The bigger the job, the broader the organizational visibility (in most cases). Your biggest resistance will probably come from individual project engineers. Surprisingly enough, you'll probably meet some resistance from buyers. It helps if everyone is for the program. But the support of the controller and (usually) the chief engineer is critical. Either of them is capable of derailing the program before it really gets going. Good personal relations help. One PA got a chief engineer's support by inviting him to join a Wednesday night poker club.

"Shot Gur" Technique. The personality approach won't always work. Nor is it particularly pleasant in the case of some personalities. And you can't apply it on a mass production basis too readily. The most effective way to win large groups of friends for value analysis is with the "shot gun" technique. The idea is to pepper everyone concerned with enough propaganda on the subject so that they eventually come around to your way of thinking. You might launch the propaganda with a report on how someone else set up a successful value analysis program. This first report should be to arouse interest in the subject-not to propose adoption of any program. Succeeding reports on the subject can then develop the idea in greater detail. Between reports, it's a good idea to distribute copies of articles you might read on the subject to all interested parties. In theory, the "shot gun" technique will enable you to sell value analysis to everyone concerned before you ever formally propose its adoption. Any influential doubters that remain can often be "sold" if they're taken to visit some plant that already has value analysis.

The "Direct" Approach. If you want to have a value analysis program, why not just present

the facts to management and get approval. This is certainly the easiest way—in many cases, the most effective one. One PA did it successfully with a 30-page presentation. He first outlined why a value analysis program was needed. Then he described two successful programs established by other companies in the same industry. Finally, he made a detailed proposal for a program of his own. His ideas were adopted with but minor changes by the company's administration committee.

Another PA didn't bother with any written reports. He verbally described the idea to the executive vice president and got a preliminary O. K. Then he set up a meeting for all interested parties to work out the details. The minutes of this meeting became the basis of the company's value analysis program.

The first three approaches described in this article may seem a little Machiavellian to many PAs. If you can get results with the direct approach, why bother writing a lot of reports, convincing everyone it's a great idea, or using "sales tricks" to get support? The fact is a simple direct approach often does work. Remember however, that to have a successful value program you've got to have more than top management backing. You can't get enthusiasm and initiative by top management fiat. People will play lip service to management's order to cooperate on a value program. But they won't actually accomplish anything unless they believe in value analysis. So it's smart to sell value analysis to the organization

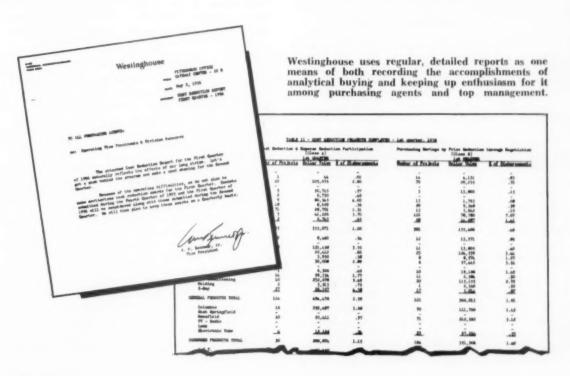
even if top management is solidly behind you. If top management is a little cool on value analysis, it's usually vital to get broad support. Most top managements won't buck a proposal that has wide backing unless they're dead set against it.

Keep the Program Sold

If you spend money and don't show results, you're eventually going to get into trouble. So a reporting of accomplishments is basic to keeping a value program sold. Progress reports are common to every successful value analysis program. That's why a separate short article in this issue is devoted to reports.

Another good way to keep interest high in the program is to give special recognition for outstanding value accomplishments. The "Value Vendor" award proposed on page 58 is one approach to foster supplier cooperation. Company personnel obviously will be extremely interested if value performance is a factor in their personal success. Since there is widespread interest in performance rating techniques, a separate article in this issue is devoted to the subject.

General Electric deserves credit for initiating one very effective means of generating value consciousness. The company's "Value News" is issued to all personnel concerned with value analysis and is full of cost cutting suggestions. Worthington Corporation's "Buy-Word" is another excellent effort along the same line. Samples of both "Buy-Word" and "Value News" are illustrated on the opposite page.





How to Organize for Value

A N ORGANIZED effort inevitably accomplishes more than an unorganized one. This maxim applies to value analysis as much as it does to any other program. A properly organized value analysis effort promises rewards that can significantly affect operating profits. But a poorly organized value analysis program is usually doomed before it ever gets started. Fortunately, there are a limited number of ways in which value analysis can be organized. At least one of them can be adapted to your existing organizational structure.

Is It a Purchasing Function?

Value analysis, by its very nature, is not strictly a purchasing function. This fact cannot be overemphasized. Most purchasing and management men consider value analysis a purchasing function mainly because it was created by purchasing men. This view is bolstered by the fact that practically every value analysis activity today comes under purchasing's jurisdiction. "The general belief that value analysis is something that applies uniquely to purchased items is probably resulting in hundreds of thousands of dollars of waste in companies where the principles of value analysis are completely accepted," says one critical purchasing agent. So far, at least, relatively few companies accept the obvious: namely, value analysis techniques that achieve spectacular savings on purchased items can produce equally satisfactory results on shop parts and assemblies.

The two companies that pionereed value analysis have long applied its techniques to both purchased and shop items. General Electric has value analysis seminars in which everything in the finished product is reviewed by representatives from engineering, manufacturing and pur-

chasing. The purchasing departments of Ford's car-assembling divisions "buy" everything that goes into the finished automobile whether it's made by an outside supplier or the shop. At this stage, a lot of value analysis is carried on. In addition, it's also done when a given car model is still in the design stage.

At Ford and G. E. value analysis is still a purchasing function (in the broader sense) even though the activity also encompasses shop parts. The divisional purchase analysis managers at Ford report to the division general purchasing agents. General Electric's chief value analyst, Larry Miles, works for the corporate materials manager.

Who Reports to Whom?

If value analysis is not strictly a purchasing function, why should it come under purchasing? Some would hold that purchasing should be in charge because purchasing is the most cost-conscious activity in the corporation. Others might argue in favor of purchasing because it's the only department with the knowledge of markets and sources that is so vital to successful value analysis. Old timers would point that value analysis is mostly a codification of what good buyers have been doing for years and, therefore is a traditional purchasing function. The young business school grad indoctrinated in the "team approach" would also logically have value analysis come under purchasing. No other department is purchasing's equal when it comes to experience and skill in interdepartmental relations. The typical buyer and PA must deal almost daily with practically every other department in the company.

All of these are legitimate arguments why value analysis should come under purchasing. But they're by no means the overriding ones in

Analysis

many actual cases. Value analysis is often put under purchasing's wing simply because there's no other logical spot for it. To put it under product engineering or manufacturing engineering would be a mistake—neither function is as broad in scope as value analysis itself. To make it an adjunct of the cost department sounds logical. But, it doesn't seem to work out in practice. Most cost men, by nature, can only think in terms of cost for a process or a design that someone else (engineering) has set for them. They're invaluable as members of the value team but don't seem to have the interest or initiative to take the lead on value analysis.

Why not just hire a man, call him Value Analyst, and put him on the general manager's staff? This has been done successfully. In fact, it was so successful in one case that the value analyst became the company's next director of purchases. Now value analysis is under purchasing. When the value analyst joined the general manager's staff, he did do some value analysis. But his time became increasingly taken up with general administrative matters. He was the only member of the staff who wasn't a major operating official so he was always available for special assignments. This was a good deal for the value analyst (as shown by his subsequent promotion). But it did not make for a good value analysis activity. The value analyst should be in a spot where he's not subject to interruptions on day-to-day problems. That's why he can work most effectively if he's loosely attached to some department with a minimum number of specific assignments but with ready access to many different sources of information. By process of elimination, purchasing seems to be the best place.

When people think of a value analysis organization, they automatically think of how it is done

"I simply haven't got time for value analysis . . ."



Many purchasing agents who agree in theory that value analysis should be applied to materials, shop operations, etc. complain that they just don't have the time or manpower to get a program going. But doesn't analyzing values extend to the office, too? One purchasing agent who has had notable success in value analysis with only limited means has this to say.

"You haven't got time or people for value analysis? Then reduce your workload—put salary dollars now being used for paperwork into a value analyst—even if you have to borrow a man from engineering on a half-day basis. Here are some of the things that helped us clear the way for our value analysis program:

We use blanket orders as much as possible, especially on MRO orders. And we have established a cash purchasing system for rush MRO buying.

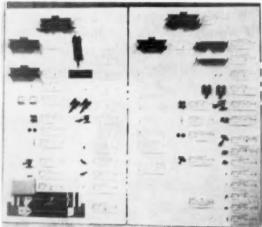
We use traveling requisitions extensively and eliminate unnecessary filing.

We have dropped processing of invoices and turned it over to accounting.

We have cut down on our expediting load by making it mandatory for suppliers to submit reports on ordered balances. Some of them resisted—but not for long.

We have rigorously eliminated unnecessary reports. You may have been sending in a weekly report to the boss for a number of years. Stop sending it for a few weeks—if there's no howl, then drop it altogether. You'll be surprised how meaningless some reports have become—even though they were important at the time they were established.

We had buyers analyze carefully their routine duties—and found out that many of them could be delegated to clerical personnel.





A popular technique for keeping analysts and buyers alert to cost reduction possibilities is "exploding" the end product and displaying it conspicuously. The display at right is used by a television manufacturer at cost reduction committee meetings. The A. C. Gilbert display, above, demonstrates savings made through analytical buying.

in the big corporations like Chrysler, I. B. M., U. S. Steel, etc. Practically all the big outfits prefer to have staff men working full time on value analysis. A reasonably typical value analysis group in a big company might include the chief analyst, two or three analysts, and a secretary.

If you have only two or three people in your entire department, don't abandon hope of starting a value analysis activity. There's more than one way to skin a cat. First, you can always settle for one full time (or even part-time) specialist. A few companies with annual volume of purchases as low as \$5-10 million have found that a staff value analyst can boost profits substantially. One of them is the A. C. Gilbert Co. in New Haven, Conn. Purchasing Agent Ronald Jones reported to the 1955 N. A. P. A. Convention that, with a staff value analyst, Gilbert had been able to make savings of \$70,000 per year in the first six months of the program. Mr. Jones said that he hopes "to reduce the cost of materials this year [1955] by 3%." How Mr. Jones does it is reported in detail on page 74.

Form a Committee

The more people in the act on value analysis

the greater the accomplishment — and the confusion if the organization isn't properly set up. Each value analysis project will be different from the last and the greater the availability of special skills, the more likely it is that a cost saving will be made. You can't hire analysts with years of specialized training in everything — especially if your set-up calls for just one analyst.

What you do is form a value analysis committee. Your value analyst, if you have one, might act as de facto chairman. (Perhaps the title itself might go to some chief who outranks him.) From that point on, you're on your own. Exactly whom you should invite to serve on the committee depends, to a great degree, on the peculiarities of your particular organization. The object is to get both brainpower and administrative power. For the former, you'll want men with special skills. Particularly useful are previous cost estimating and methods experience with products you'll be analyzing. You need people with administrative power to insure the success of the program. Usually (but by no means always) this group is the one with the greatest amount of imagination and is, consequently, the most likely to have the continuous flow of new ideas so vital to successful value analysis. For some pointers on the committee approach, including one good example, see the article on value analysis meetings on page 66.

Do It Yourself

If you don't hire a full time staff value analyst, then the committe approach is almost vital. However, you'll find that you can't get the job done just by holding meetings to talk about it. A lot of value analysis is legwork; a lot more is quite introverted work involving sitting at a desk making estimates, and comparisons, etc. Someone has to do this work if you want to get the most out of value analysis.

If your company isn't big enough for a full-time analyst or your management is too unprogressive, then you should try to make do with a part-time help. A part-time program handled right can be just as effective as one with full-time talent on the job. In fact, it could be even more effective in theory. You're more likely to get more people in the act with a part time program.

One route to effective "part time" value analysis is the "every-buyer-an-analyst" approach. You follow it by setting up a program whereby every buyer devotes a given percentage of his time to value analysis. Specific projects are

worked on; they're either assigned by the P. A. or initiated by the buyer himself. Buyers are instructed to make out periodic progress reports on their value projects.

The big difficulty with this approach is that even the most conscientious buyers will often be inclined to put aside their value projects to work on some problem of more immediate concern. This difficulty is tough to surmount. Most buyers already have full-time jobs and don't have the time for much else. That, of course, is one of the basic arguments for having a full-time analyst. But, if this is impossible, the only thing you can do is squeeze the extra out of someone else. One of the ways to give buyers incentive to "make" the time for value analysis is to make a game of it. Periodically sit down with each buyer and set a series of cost reduction bogeys. The targets should be realistic and the type that are attainable with a reasonable effort. If you can relate cost reduction performance to salary boosts, all the better.

The big thing in organizing for value analysis is to have a plan. A bad plan is usually better than no plan at all. And with a good plan you have the foundation for tremendous accomplishment.



A Plant-Wide Committee for Cost Reduction

In one medium-sized Pennsylvania plant (arraual sales volume about \$40,000,000) the cost and expense reduction program is carried on by a special plant-wide committee. The committee establishes policy, and reviews all docket ideas submitted by individual departments. The committee has final say on what ideas are to be further investigated or rejected.

The committee, which meets monthly, is made up of the engineering manager, purchasing agent, works manager, manufacturing superintendent, equipment and methods superintendent, works accountant, industrial engineer, tool supervisor, and the cost reduction supervisor.

At the beginning of the year, each department measures the potential savings it can make, and establishes its cost reduction objective. The department forecasts are tabulated collectively by the committee and a plant-wide goal is set up. As the program proceeds, cost reduction accomplishments are charted by department and for the plant as a whole. Individuals responsible for particular cost reductions are listed below the department charts. All charts are posted conspicuously throughout the plant.



How to Hold a Value Analysis Meeting

S OME COMPANIES that have had regular value analysis meetings don't have them any more. They confine their value analysis effort to individual analysis projects handled by one or two men.

"Our meetings," said one ex-booster of the group approach, "did nothing but waste the time of the people involved. Sometimes they degenerated into simple bull sessions. Other times, the results were even less encouraging. All too often, the meetings became sessions where the individual responsible 'defended' himself and considered any suggestions to be an affront to either his competence or his character. When

someone did come up with a good idea, it was duly recorded in the minutes. But six months later no one had done anything about it."

In another company, the purchasing agent has been conducting regular value analysis meetings for two years and has nothing but praise for them. He estimates savings realized to date total \$139,000.

The two cases cited here are extremes. One company thinks value analysis meetings are terrific; the other thinks they are a waste of time. The more typical case is one in which value analysis meetings have led to savings but there is good reason to believe that a lot more could be

Close coordination between departments has produced notable savings for the Tennessee Valley Authority's value analysis program. Shown here at a meeting of key personnel are (l. to r.) R. Bruce, maintenance supervisor, Power Production Branch; L. B. Rockwell, chief, General Procurement Branch, Division of Materials; E. E. Robinson, chief, and J. Marshall Johnson, assistant chief, Steam, Power Production Branch.



accomplished. If you want to get more out of your value analysis meetings, follow these rules:

1. Get Top Management Backing. "Pre-sell" the idea of value analysis meetings to your company's top management before you attempt to go further. One PA did more than just convince the company president value analysis meetings were a good idea. He persuaded his chief to "sponsor" the meetings. The company president wrote the original memorandum proposing the meetings and presided at the first meeting. These gestures would, of course, be performed by many company presidents even if they were only halfsold on value analysis meetings in their own minds. This PA, however, did a real selling job. The boss actually took an enthusiastic interest in value analysis. He was extremely proud of the suggestions he made that ultimately resulted in cost savings. He also took great pride in the total savings that were made. Not surprisingly, everyone else in the organization takes a keen interest in value analysis. As a result, the meetings have enjoyed tremendous success. Maybe they would have been just as successful if the PA hadn't done such a good selling job on the company president. But the fact remains that it's a lot easier to get successful meetings going if you do have really enthusiastic front office support. And, if the boss flatly vetoes the idea, your only hope is to patiently await the arrival of his successor!

2. Think Ahead on Details. After you've gotten headquarters' blessing for the project, you're by no means ready to start holding meetings. In fact, sloppy staff work at this stage can cause the whole program to flop. You should go to work on the details now. These include:

 Lining up a place to hold the meetings. It should be a conference room big enough to comfortably hold both the people and any bulky items that might be analyzed.

 Working out procedures to draw parts out of stock that you want to analyze. The best deal is one where you can temporarily "borrow" stock from stores with a minimum of paperwork.

• Assigning someone to handle paperwork. It's almost essential that each item analyzed at the meeting be tagged with part or spec. no., source, price, etc. In addition, someone will have to get the material that's analyzed out of and back into stock. You also need someone to take notes at the meeting. Some companies have a stenotypist. Others, fearing that her presence might tend to inhibit creative thinking, have one of the participants take notes in more discreet fashion.

3. Line Up Participants. Before you can hold meetings, obviously, you've got to decide whom you're going to invite. This isn't as easy as it sounds. First you've got to decide whether you're going to have basically the same group participate in each meeting or vary the participants with the agendae. As with almost anything else, people

Regular meetings have proved a boon to many value analysis programs — a stumbling block to others. Unless your meetings are well planned, well followed up, and noticeably productive, there's not much point to holding them.

are better at value analysis after they've had a little practice. But if you have the same people at each meeting, you won't be getting specialized assistance on the particular commodities taken up. Also, the program will eventually suffer from lack of fresh ideas.

Another basic problem is that the top executives whose rank might "entitle" them to become participants are sometimes not the best people to choose. All too often, they're either out of town or so preoccupied with other activities that they can contribute little. Also, Mr. Big might not be the best qualified in terms of the special skills and talents needed. This makes it even more important to consider the personalities of all individuals who are legitimately interested in the program.

All this points of course to some compromise approach tailored to the particular company's organization. Here's one company's solution: On the permanent committee for value analysis are the executive vice president, the director of purchases, the chief product engineer, and managers of manufacturing engineering, plant engineering, and cost estimating. These six men or their assistants attend every meeting. Also invited to meetings are specialists such as the buyer and project engineer concerned with the particular products being analyzed. Occasionally, the committee will also call in an outside consultant. This is done when the committee is reviewing something that no one inside the company knows a great deal about. One recent example, in this metalworking company: lubricants.

In the above example, there were few personality conflicts and each participant was convinced that such sessions were worthwhile. In practice, it's not easy to create this ideal environment. Usually, at least one major executive will be cool on value analysis. In fact, some PAs have been forced to limit participation in their meetings almost entirely to purchasing personnel simply because other department heads never seemed to "have the time" to attend meetings. Apathy in other departments can be a real prob-

"It Ain't Necessarily So . . ."

Popular conceptions are usually wrong, according to Larry Miles, who heads General Electric's value analysis services section. They don't fit specific cases—and often they are no longer true even as generalities. Here are a few fallacious ideas he exposed at a recent meeting of the American Society of Tool Engineers:

"Plastics are brittle . . ."

"Plastics are weak. . ."

"If it's a thin enclosure, sheet steel is most economical. . ."

"Tool costs are too high for our quantities...."

"If it is solid material, it's better. . ."

"An upsetter can't gather enough material to make a spacer large enough for our purposes. . ."

"They can't roll an Acme thread. . ."

"We are already using the best processes. . ."

"We are doing it about right. . ."

"We can't do any of our jobs for half the cost, . ."

"We are up to date on what's new. . ."

Mr. Miles shot holes through each of these misconceptions by showing actual examples of how substantial cost reductions were made by ignoring them and striking out into new ground. Mr. Miles' entire talk appears in Paper 24T42, a copyrighted publication of ASTE.

lem even with enthusiastic top management support. That's why you must:

4. Sell the Program. You won't have any resistance to regular value analysis meetings, if everyone concerned:

 Thinks that such meetings will actually accomplish something.

• Is convinced that the meetings are really a joint effort and not an attempt by one department to get in better with the brass or to "show up" other departments.

Believes that participation will tend to enhance rather than detract from his status in the organization.

The actual selling process is heavily dependent upon the personalities of the individuals involved.



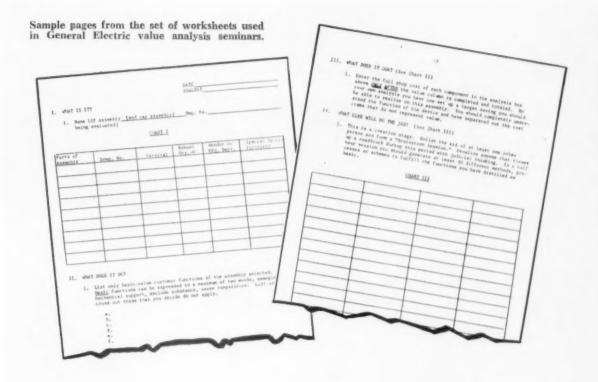
Day to day contact between individuals—particularly in different departments—is probably the most effective tool in developing value analysis ideas. The informality of such sessions tends to stimulate the imaginations of all concerned.

There are probably almost as many approaches as there are people. The PA for a heavy equipment manufacturer bombarded other department heads with memoranda and copies of articles for more than a year. He finally got his point across. In fact, his selling job was so good that the chief engineer suggested to the company president that the PA act as chairman of the value analysis committee.

5. Don't Fall Down on Organization. Poorly organized value analysis meetings will rapidly degenerate into free-for-alls. Everyone may have a good time but nothing will get done. This won't happen if the agendae are well planned and the meeting is well managed. A successful meeting is one in which no one feels inhibited about offering suggestions. It is also one in which the agenda is pretty rigidly followed and there are a minimum of profitless tangents followed. It won't be easy to get both these qualities in your meetings. To do it you will need:

A regularly assigned time for each meeting so it can be fitted into everyone's schedule. For example, one company has its meeting every other Monday at 9 a. m. A good rule is to forbid interruption while the meeting is in process. If there's a phone in the conference room have it disconnected.

A formal, written agenda. It should be distributed to participants well in advance of the actual meeting so as to give them time to be well prepared for the commodities that are analyzed. Comments and suggestions should be encouraged.



A competent conference leader. This job calls for a man who can both inspire the imaginations of others and keep a meeting from getting out of hand. Your company president is probably ideal for this job. If this isn't possible, the top purchasing man is probably next best qualified. However, it might be politic to let the chairman's job rotate among other participating department heads.

▶ Minutes written up and distributed to all interested parties. It's a good idea to edit the actual minutes so that any suggestions that are obviously impractical can be edited. Responsibility for follow through on the suggestion should be clearly assigned.

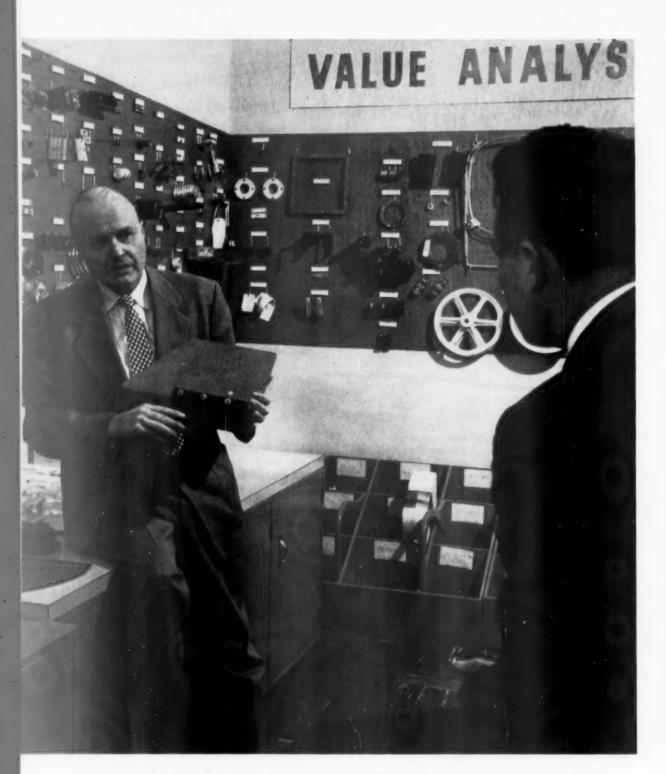
Organized follow-up on open suggestions. All possible cost savings should be investigated and none should be abandoned until they are definitely proved impractical. Best way to do this is to set a target date for the individual responsible to report on it at a future meeting. An over-all report of "delinquent" suggestions might also help spur projects to completion.

6. Help Maintain Enthusiasm. Most value analysis meetings fall flat because proposed savings are too seldom realized. You can expect a fairly high failure rate on suggestions made at value analysis meeting. Changes almost always look better in the idea stage than they prove to be in practice. A lot of ideas prove worthless only after someone has spent considerable time on a thorough investigation. Unfortunately, prac-

tically all of the suggestions that pay off only do so after several people have said "it won't work." As a result, not many suggestions can be discarded just because they are not immediately accepted.

But it can be, and is, discouraging to work hard to investigate a suggestion only to have it proved worthless. A few failures will cause almost any participant in value analysis meetings to lose enthusiasm. This is particularly true if he isn't a full time value analyst with a "vested interest" in continuing value meetings. Enthusiasm is essential to a good value program. To keep it from lagging, you've got to "maximize" the successes and "minimize" the failures. One way to do this is through regular progress reports. In making them up, don't be stingy with the bouquets. If three people had something to do with making a saving, give them all credit. Other gimmicks that generate enthusiasm for the idea of value anlysis are "value newsletters" and "value vendor awards." They are described elsewhere in this issue.

Don't get too carried away with your own enthusiasm for value analysis meetings, however. Remember, they're just one rather limited tool of value analysis. Most value analysis is actually accomplished as the result of concentrated effort by one or two men. Meetings are mostly a source of ideas and inspiration. But there can be no value analysis without some source of ideas and the inspiration to carry them out.



Few value analysis efforts in industry haven't been influenced in some way by L. D. "Larry" Miles. GE's extraordinarily successful program, which he has directed for the past decade, has been widely imitated and adapted. Beyond that, he has personally given advice and information to scores of purchasing departments who have asked for help on value analysis. Imaginative, enthusiastic, and extremely capable, he holds without challenge the unofficial title of "Dean of Value Analysts."



General Electric's Program Still Sets the Pace

C REDIT for a lot of "firsts" in value analysis should go to the General Electric Co. Even the term "value analysis" was coined by G. E.'s manager of value analysis. L. D. Miles.

Credit for the basic idea of having value analysis should go to Harry Erlicher, General Electric's vice president-purchases back in 1947. Mr. Erlicher brought Larry Miles, a bright product engineer with an interest in cost reduction, into purchasing. In a short time, Miles was spending a great deal of time on cost reduction. The results were so spectacular that the function was formally defined and called value analysis. General Electric has good reason to be proud of Mr. Miles' accomplishments in the last ten years. Here are some of the reasons why:

G. E. has made savings of millions of dollars by applying value analysis to its galaxy of existing products.

More than 2500 people have been trained in value analysis by Mr. Miles and his staff. As a result, additional millions in "invisible" savings are no doubt being made by applying value principles to products while they're still in the design stage.

The company's original one-man value analysis activity has expanded until there are now over 100 "professional value specialists" in the company's various departments. In itself, this is proof of the wide acceptance of value analysis at G.E.

Practically all of the value analysis activities started by other companies have been influenced, to some extent, by G. E.'s pioneering in the field. Some companies' value set-ups are almost carbon copies of G.E.'s.

According to Mr. Miles the blossoming of value analysis from nothing to a recognized function in the last ten years is no accident. It is closely tied to a fundamental change in our economy. "The system of engineering designing, purchasing buying, and manufacturing making doesn't work like it used to," says Mr. Miles. "We're beyond the period of just making things that work and are now in a competitive cost era. The fact is that almost anyone can make a motor or a refrigerator that will work. The real problem is making a quality product at a competitive cost.

"Cost is just as important as performance," Mr. Miles asserts. "To get both, you need a team effort. An engineer can't be held solely responsible for cost, saleability, appearance, and utility. He needs help. He gets it with the value analysis approach. We're beginning to see now that value has to enter into everyone's product. Companies that use value analysis intensively get a definite competitive edge."

General Electric is a big company and its value

The company that pioneered in value analysis continues to broaden and improve the concept. GE's set-up is tailored to the big corporation. But the principles and ideas behind it are applicable to an organization of any size.

set-up is specifically tailored to its size. Each plant operates on its own from a profit standpoint and is free to accept or reject value analysis or any other function. In general, however, this is no great problem. G. E. management is sold on value analysis and every important plant has one or more staff value analysts who function just like those in many other companies.

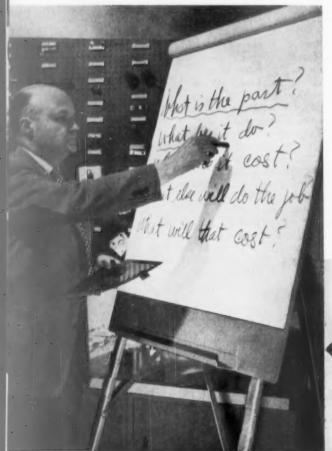
What's unique about the G. E. value system is the central group under Larry Miles. Although Mr. Miles is undoubtedly the nation's best known value analyst, neither he nor any members of his staff actually perform value analysis as such! The central group acts purely in an advisory capacity to the operating departments. It has two basic jobs. One is training operating personnel in value analysis techniques. The other is consultation—explaining value analysis to division management and allied groups.

Mr. Miles says his unit achieves its dual objective by performing these basic jobs: research, education, consultation, and motivation.

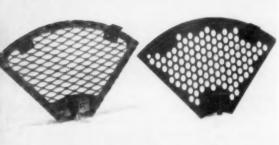
Research. The headquarters men under Miles spend a lot of time on basic research on new techniques of value analysis. One man, "Dusty" Fowlkes, spends all his time digging up specialty vendors who might be able to do jobs with techniques the average engineer isn't even familiar with. The results of Mr. Fowlkes' research are passed on to all appropriate operating departments where buyers and analysts can make use of them.

Education. When 2500 men have already been indoctrinated with the principles of value analysis, it's obvious that education is one of the most important jobs of Mr. Miles' group. In addition to this, he has sent information on dozens of purchasing agents interested in bringing value analysis into their companies. He and members of his staff have addressed a number of N. A. P. A. meetings. Training efforts continue with periodic seminars at G. E. plants, new written material, and development of various educational aids.

Consultation. Like every other G. E. corporate staff group, Mr. Miles and associates are available for consultation on their specialty to any G. E. manager requesting their services. However, they're available to guide only on principles, practices, and procedures. Actual analysis, as was mentioned previously, is always done by



Larry Miles' conviction and zeal for his subject have sparked many a production value analysis seminar. Here he lists fundamental questions—the answers to which slashed the cost of the motor guard below. The basic guard was formerly a two-piece welded assembly. Now it is made as a single stamping. Cost has gone from over three dollars to less than 40 cents.



operations. When operating departments need value analysts, they often call on Mr. Miles for help. Currently, he's trying to find qualified men

to fill nineteen openings.

Motivation. Like almost everything new, value analysis has to be "sold" to people who are skeptical as to its accomplishments. Selling value analysis—both to people inside G. E. and in the business world generally—has been and still is one of the major efforts of Miles' group. Wray Reger's job at G. E. is value analysis communications. He arranges for publicity about value analysis in General Electric house organs and other publications. Other past efforts include publications like "Value News," etc. which are illustrated elsewhere in this issue.

Even trained value analysts need motivation. Like everyone else, they work best when their enthusiasm is high. That's one reason why Mr. Miles has a "group meetings coordinator" on his staff. Another reason is that analysts in the scattered G. E. plants need "cross pollinization of ideas" if they're to continue doing the best possible job. So coordinator Dan Barlow arranges meetings for small groups of the company's hundred-plus analysts. Ten to fifteen analysts attend each meeting. Meetings are scheduled so that each analyst attends six meetings a year. For four of these meetings, the group is kept intact so that men with similar problems can exchange ideas. The men are deliberately mixed up for the other two meetings so that analysts with greatly dissimilar products and problems are working together. This helps stimulate a fresh approach.

The cost of General Electric's value analysis efforts amounts to more than many a small company's total payroll. Larry Miles is the first to admit that his organizational set-up is strictly big corporation stuff. But he emphasizes strongly that small companies can make money with value analysis. In fact, he believes that there are hundreds of companies who could derive amazing benefits from having a full time value specialist on their payroll. In any event, says Mr. Miles, every buyer should be trained to use value analysis techniques as part of his daily work. The training job is best done by a professional cost reduction specialist. But even inferior training is most always better than no training at all.

A New Profession?

Mr. Miles can visualize value analysis as a separate independent profession. He firmly believes that there is as much need for the professional cost reduction specialist in industry as there is for any other professional man. Whether value analysis will become more of a specialized function than it already is remains to be seen. However, one thing is obvious right now. Value analysis is a field purchasing can't afford to neglect, if it is to continue to progress.

Tips for Small Companies

Mr. Miles has had a lot more experience in dealing with the problems of value analysis in the small company than many people would give him credit for. Some G. E. departments have no more than a few hundred employees and operate on a semi-autonomous basis. Mr. Miles has also had a lot of dealings both with small suppliers and with purchasing agents of small companies who are interested in value analysis. He has been forced to learn a lot of "dos and don'ts" in value analysis the "hard way," through trial and error. Based on his experience, he offers these tips to small company PAs starting value analysis programs:

1. Get a Full-Time Analyst. There is an enormous difference between what can be accomplished by a man who devotes all his time to value analysis and one who's distracted by other duties. Mr. Miles knows of no company that has lost money on its investment in a

qualified full time analyst.

2. Organize for Value. This is a tough one, Mr. Miles admits. But the fact is if purchasing isn't set up to accomplish its basic value mission and isn't an equal partner with engineering and manufacturing, there will be a tremendous loss of "value potential."

3. Pinpoint the Opposition. If purchasing gets the go-ahead from headquarters on value analysis, it should try to prevent opposition from developing in manufacturing and engineering by getting their understanding in advance.

4. Concentrate on Single Items. At the start, don't talk in terms of reducing over-all cost by 2% or saving \$50,000 per year. People won't believe you and will think you're just putting on a show to curry favor with the "brass." Instead, talk in terms of reducing the cost of some specific item. This approach will help sell value analysis, says Mr. Miles.

5. Work through Friends. The cold fact is a lot of people in your organization are going to think value analysis is nonsense when you first get started. The easiest and most effective way to overcome opposition is to by—pass it. Work only through those engineers who believe in value analysis. The results you achieve will bring around the scoffers.

Does Value Analysis Pay In the Smaller Company?

VALUE ANALYSIS will save relatively just as much in the small company as it will in the large company," says A. C. Gilbert's purchasing agent, Ronald Jones. Gilbert itself is a good example of how value analysis can help a smaller company boost profits. The New Haven, Conn. manufacturer of educational toys and electrical appliances had some real problems right after the Korean War. Inflationary war pressures had pushed costs up to the point where profit margins had all but disappeared.

In Gilbert's lines of business, prices must be competitive. To boost profits, costs had to be cut. A company-wide cost reduction effort was initiated. Purchasing was naturally a part of this program but Purchasing Agent Jones felt his department could accomplish even more. He suggested to management that purchasing take on a staff value analyst to help dig out additional cost

To an unprogressive management, Mr. Jones' idea would have sounded ridiculous. Volume of purchases was only \$6 million. It was handled efficiently by Mr. Jones, an assistant purchasing agent, and two buyers. A separate staff value analyst would increase department overhead by a substantial percentage. And what could one accomplish with such a relatively low volume of purchases? Gilbert isn't a G.E. or a Ford. Fortunately, Gilbert management was open-minded. It listened to Mr. Jones' arguments that a good staff value analyst could pay for himself many times over. Proof of what value analysis had done in other companies also helped convince management. Mr. Jones got his analyst.

Plant-wide Program

Value analysis isn't something that's just done by the staff analyst at Gilbert. Everyone makes some contribution. Cost reduction ideas affecting purchasing can be initiated in two different channels at Gilbert. One of them is through the plantwide cost reduction committee. Specific products are reviewed at meetings attended by representatives of design engineering, production engineering, cost control and purchasing. When proposed changes might affect appearance of the product, sales is also invited to attend. The value analyst

(who is purchasing's representative) transmits recommendations concerning purchased items to the buyers and they act upon them.

Purchasing's Own Program

Purchasing's value analyst and other members of plant-wide cost reduction group don't have a monopoly on cost reduction ideas at Gilbert by any means. Purchasing also has its own value effort. Unlike the plant-wide program, purchasing's program is concerned almost entirely with purchased items-usually analyzed on a commodity rather than a product basis.

The value analyst picks out the items to be reviewed by going through the traveling requisitions. When you're buying close to 12,000 component parts, this job is extremely important. The trick is to pick out the items that will pay off. Usually this means the expensive items and/or the high volume ones. (If you're using 5 units per year of a part worth 1¢, you're not saving much even if you get a 100% cost reduction.) Then the analyst gets blueprints and samples. Every Friday morning both the buyers and the analyst meet and review the parts that have been selected. Ideas that develop are then discussed with engineering, suppliers and any other interested parties.

Even in a small company, it takes a lot of OKs to get anything done. A full time value analyst can accomplish nothing if he can't get others to cooperate. With the Gilbert program, cooperation was not brought about by management fiat: it was brought about because people were convinced it was to their interest to cooperate. The "self-interest" approach to getting everyone behind value analysis is the most successful. Here's how it works at Gilbert:

Interest Is Kept Active. Exhibits are made of big value analysis projects by exploding detail components of a product on a display board. In this way everyone can more easily make a contribution. And, "before" and "after" exhibits graphically illustrate what can be accomplished.

Incentives Aren't Neglected. Every effort is made to give recognition to cost reduction efforts at Gilbert. The man who makes the original suggestion is the one who gets the credit. His accomplishments are noted on his personnel record and they become one of the bases for salary boosts.

Ideas Generate Ideas. With proper incentive, people don't stop thinking. An idea that saves \$1,000 might lead to an idea that saves \$2,000 which, in turn, leads to an idea that saves \$5,000. Hundreds of thousands of small funnels are used in a Gilbert chemistry set. Purchasing found it could cut the cost of the funnel from \$111/M to \$80/M by bringing in a vendor with different manufacturing techniques. The change inspired the chief engineer to suggest that the funnel be made out of plastic instead of glass. This move reduced the cost still further to \$30/M.

Keep Re-checking Promising Items. If you happen to make a saving on a particular item, that doesn't mean you can't make additional savings. Three different savings were made on caps to seal vials (for chemistry sets) at Gilbert. The first change from a cork to a gel cap speeded up the assembly of the cap to the vial to the tune of an \$8300 per year saving. The second change, to a more costly plastic cap, speeded up assembly enough to make an additional net saving of \$3600 per year. The third change, to a different type of plastic cap and a lower cost vial, saved an additional \$4200/year. Total savings to date on this item: \$16,000/year.

Wash Out Unprofitable Items. Sometimes, says Mr. Jones, you can spend a lot of time trying to take cost out of an item and never succeed. Efficient value analysis involves realistic appraisal of a project's chances for success; whenever possible, the most time should be spent on the projects most likely to show a healthy sav-

ing. When the chances of making a saving are remote, the project should be dropped in favor of something more promising.

Need for a Specialist

At Gilbert, many of the value analysis ideas are generated by the buyers. Nevertheless, according to Mr. Jones, a separate analyst in the purchasing department is invaluable. Buyers just don't have time to do a thorough job on value analysis without any help. There are too many interruptions; they rarely have a chance to give a value project their undivided attention.

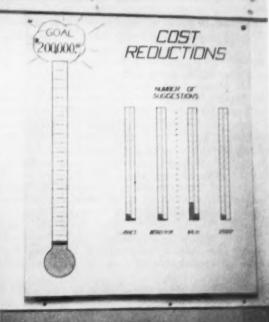
In an organization sold on value analysis, however, there is a lot that buyers can do that would never show up on a savings report. Almost by definition, if there's value analysis, there's teamwork between purchasing and engineering. This can mean a lot of cost savings while the product is still in the design stage. At Gilbert, buyers attend "tool conferences" with design engineers to discuss products before they are put into production. As a result of such meetings, there has been a big reduction in the number of "specials" bought when a standard item will do the job. Also, engineers are better informed on the economics of raw materials. The net result: a better product at lower cost.

Although he knows value analysis is getting a lot of results that are hard to measure, Mr. Jones is banking on a lot of tangible savings this year. His cost reduction target is 3% of purchases. Even if he falls short of it by 90%, the savings will still greatly offset the cost of value program.

Purchasing Agent Ronald Jones has lectured on value analysis locally in New England and at the National Association of Purchasing Agents convention. The question most frequently put to him: how can we put it to work in the small company?

Simple visual presentations help maintain buyers' enthusiasm for value buying. Mr. Jones recently set up this progress chart in A. C. Gilbert's purchasing department. Number of suggestions is marked in blue approved projects in red.





Worthington Corp. spends \$80 million a year in many widely scattered plants making a broad variety of products. This is a tough assignment for one value analyst, but the company is getting an \$8 return for every \$1 spent on the program.

One Value Analyst

Worthington Corporation is justly proud of a pay-off of "at least 8-1" on value analysis. Savings of at least \$8 have been made for every \$1 that the company has spent on value analysis. These results are made particularly spectacular by the fact that the value effort has been diffused over such a wide range of products, plants, and processes. One value analyst, Ralph Dames, serves separate buying groups in eighteen plants

scattered across the country.

A small company purchasing agent might think it would be easy to make a dramatic showing on value analysis in a company like Worthington with an \$80 million volume of purchases. The fact is it's no easier for Worthington to save money than it is for a company with a \$600,000 purchase volume. Worthington is really a group of much smaller enterprises. In general, the company makes many different products and models in relatively low volumes. One indication of this is the fact that the company's plants issue a total of about 5,000 orders per week. A lot of different items are bought in relatively small quantities.

A value analyst covering eighteen plants with this volume of purchase orders, never suffers from lack of potential projects on which to work. The big problem is to decide which jobs to tackle. This is particularly true when you're not in close physical proximity to more than a few of

the plants you serve.

Mr. Dames solves his communications problem by having each plant send him carbon copies of every purchase order it issues. This "solution" creates another problem. How do you keep from spending all of your time going through the flood of paper from the plants? Mr. Dames' answer: "selective" value analysis. A secretary sorts out the order copies as they come in. About 10-15% of them are for more than \$1000. These orders, Mr. Dames always reviews. The balance of the orders isn't ignored, however. Occasionally, Mr. Dames reviews orders from one plant. He also regularly accumulates orders from all plants for specific commodities and uses the data for special studies.

Although Mr. Dames is the only value analysis specialist in the Worthington Corporation, he emphasizes that he is by no means the only person in the company engaged in value analysis. He says that he "likes to think of value analysis as a cooperative effort in which I am the clearing house." Obviously, Mr. Dames is rarely in a position to carry a specific value project through to completion himself. He's too far away from the actual operation in most cases. And he wouldn't want to, anyway; actual changes on purchase orders, etc. should be instituted by the buyer. What Mr. Dames tries to do is pass ideas on to buyers so they, in turn, can make savings.

If one buyer has an extra good source for some commodity, Mr. Dames passes this dope on to other plant buyers who handle the same commodity. If some new product will save money, Mr. Dames tells the buyers about it. If a "specialty" vendor looks promising, Mr. Dames will see that he meets the right buyers and gets a chance to quote. If it looks as though a design change will save money, Mr. Dames takes it up with plant personnel. Mr. Dames is a staff man in the strict sense. He is available to help the buyers save money and to funnel them ideas they can use. He doesn't do any buying nor does he attempt to tell buyers what to do. This "low pressure" approach is one reason why Worthington's value program has been so successful.

Common Sense Techniques

There's nothing deep and mysterious about the Worthington value analysis techniques. They are made up mostly of applied common sense and imagination. Just about any size plant can make substantial savings by using them. One of the most straight-forward ways to save is simply to read a lot about new products and developments. For example, Mr. Dames read in a business publication how one company was rolling tapered threads. Worthington used a lot of pipe plugs that had cut tapered threads. 7-10¢ per plug was saved by changing to the lower cost rolled thread design.

Value Analyst Dames: "The secret is in convincing people that you're honestly trying to help them and aren't just trying to grab credit by exploiting someone else's ideas."



for 18 Plants

"When you're buying in low quantities, a sure fire way to save is to use someone else's standard item," says Mr. Dames. For example if a vendor is making something for the auto industry at the rate of 5 or 10,000 pieces a day, the smart thing to do is to adapt your designs so that you can make use of parts made on the same machine set-up. And, of course, you always want to use standard off-the-shelf items whenever possible.

In a multi-plant company, one of the easiest ways to save is to consolidate purchases. In many cases, substantial savings can be made if all plants agree to place their requirements on a contract basis. In other cases, the vendor will agree to a better price if the over-all volume is used as a basis for negotiation.

"The biggest opportunity for saving is new methods," says Mr. Dames. Here he takes a leaf from the book of G. E.'s Larry Miles and devotes a lot of attention to the specialty supplier. Mr. Dames is always looking for vendors who offer a product that's a potentially profitable substitute for something Worthington is now using. One that he's currently working on is expanded metal. "Other interesting possibilities exist", says Mr. Dames, "in fields like cold heading, and plastics."

Getting Cooperation Is Easy

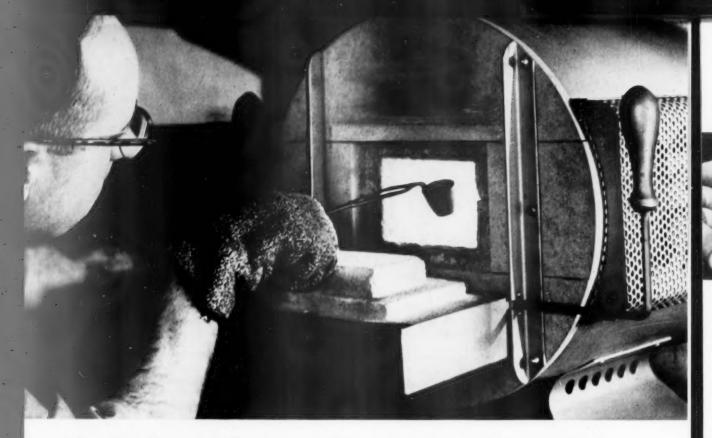
Although communication is still somewhat of a problem, Mr. Dames has found that he has little difficulty getting others in Worthington to cooperate with him once they know what he's aiming at. "The secret", says Mr. Dames, "is in convincing people that you're honestly trying to help them and aren't just trying to grab credit by exploiting someone else's ideas. Although you may be dealing with a wide variety of personalities, they're basically interested in reducing costs and will work with you if you have something to offer them."

Mr. Dames points out that the typical Worthington buyer doesn't have time to sit down and make value studies and is glad to get anything from a staff analyst to help him do a better job.

"We Search and Research for Value"

Constant search and research — generally starting with a review of a purchase order copy — in the past year have resulted in annual projected savings of about \$75,000 for Worthington. Typical among the productive "value investigations" carried on in this program are these, reported by Mr. Dames:

- A study of a tabulation of the purchase of pipe fittings by a division led to the recommendation of a new source where established volume warranted a higher discount. SAVING—\$20,000
- Suggested the use of pipe plugs produced by cold forming and thread rolling in place of those produced otherwise at higher cost. SAVING—\$8,900
- Suggested the consolidation of purchase orders for a refrigeration line-strainer where two divisions were ordering from the same source of supply at varying cost due to quantity/price differences. SAVING—\$4,000
- Recommended a new source of supply capable of furnishing standard packages of silica gel rather than obtain needs through a repackaging distributor. SAVING—\$1,000
- Negotiated with vendor (seals) to revise O.E.M. discount schedule in view of competitor's ability to do so based on latest manufacturing advances. SAVING—\$2,660
- Recommended revision of ordering frequency of a solenoid valve to take advantage of higher quantity discounts. (Study of accumulation of orders and interval of orders led to this suggestion). SAVING—\$1,165
- 7. Prevailed upon one division to specify copperclad steel floats instead of those of solid copper construction. SAVING—\$175



How Great Lakes Steel blends quality



COKE OVENS eject tons of flaming, quality controlled coke into cars for rapid delivery to quencher. Then . . .



SAMPLES ARE ANALYZED carefully to determine the amount of sulphur in the coke used in the blast furnaces.

Take five kinds of carefully selected soft coal. Blend well. Bake in a 2500° oven for 15½ hours. And if every step has been checked and double checked, the way it is at Great Lakes Steel, *presto!* You get pure, hard coke—the vital ingredient for reducing ore to high-quality pig iron.

Above, you see Great Lakes special coke recipe (cut in millionths, of course) being checked for ash impurities, a very important step in the complete analysis.

First, a sample of each kind of coal is burned to a cinder in the test furnace. Then the painstakingly mixed blend gets this dress rehearsal heat treatment, too. And this makes doubly sure that the blast furnaces produce quality iron . . . iron to make steel that meets customer specifications to the letter!

Quality control from raw materials to finished product—that's Great Lakes Steel! May we help you?

GREAT LAKES STEEL CORPORATION

Detroit 29, Michigan . Division of

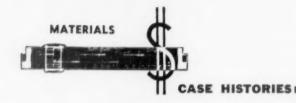


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Case Histories
of
Value Analysis
in

Materials





New Steel for Die Insert Holder Saves \$20,000 a Year

A midwestern steel producer saved \$20,000 a year in tool costs alone when by changing the steel used to make holders for cold heading die inserts. The holders are used to produce machine bolts, hexagon head bolts and cap screws. The company switched to No. 5-317, a deep hardening, tough and unusually high strength alloy steel of the Carpenter Steel Company. Breakage was eliminated, and some of the holders are as good as new after banging out several million parts.

CIRCLE NO. 37 ON INQUIRY CARD-PAGE 17



Metallizing Speeds Output, Saves Labor on Finishing

Automotive valves manufactured by Thompson Products Co. of Cleveland receive a coating of aluminum amalgam, which can more than double their life by protecting them from burning or erosion-corrosion. Originally a method of coating in molten aluminum and rinsing in baths was used. Now they are aluminum-sprayed with a metallizing gun. This new method has increased production, cut operation time, and freed plant personnel for other operations. In addition, the spray gun process gives the valve a more uniform coating.

CIRCLE NO. 38 ON INQUIRY CARD-PAGE 17



Copper-Cored Nickel Tubing Carries 40% More Current

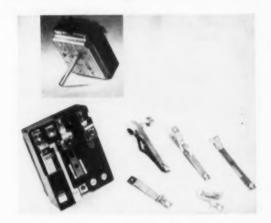
Rugged mining equipment is manufactured by the Jeffrey Mfg. Co., Columbus, Ohio. Its mine locomotives and giant Colmol continuous miners use motor starting resistance units. By switching to copper-cored nickel tubing from solid nickel rod, it now gets 40% more current carrying capacity in electrical conductors between sections of its motor starting resistance units. At the same time, the nickel-clad conductors, supplied by Superior Tube Co., resist corrosion from mine waters to a much greater extent than do bare copper conductors.

CIRCLE NO. 39 ON INQUIRY CARD-PAGE 17

Beryllium Copper Parts Cut Switch Size by 25%

Proctor Electric Company is a supplier of "fast heating" and "infinite" controls to electric range manufacturers. After experimenting for twenty years with various copper alloys for making these control switches, Proctor Electric finally chose a beryllium copper alloy, Berylco 10 alloy. It makes it possible to produce units 25% more compact than when other copper alloys were used. Use of the material also results in 20% fewer rejects.

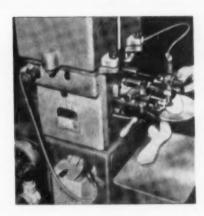
CIRCLE NO. 40 ON INQUIRY CARD-PAGE 17



Teflon Hose Outlasts Previous Material 3 to 1; Still Going

A manufacturer of machines for cementing shoe soles and bottoms found that the flexible hose used to transmit adhesives from the storage pot to a nozzle was lasting only a year. He switched to a hose made of DuPont Teflon, and reports that it is "as good as new. . ." after being in use for over three years.

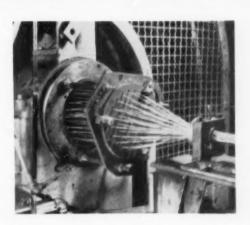
CIRCLE NO. 41 ON INQUIRY CARD-PAGE 17



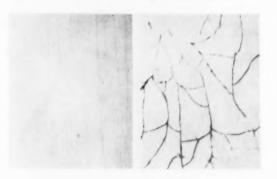
Polyethylene Replaces Paper And Lead on Cable

Durable Bakelite polyethylene is used by Whitney Blake Co., New Haven, Conn. manufacturers of communications cables, to do two jobs previously performed by paper and lead. It serves both as wire insulation and as outer cable jacketing. Flexibility, lightweight and toughness make cable constructed with it easier to handle and more economical to use. One of the immediate benefits of polyethylene insulated cable is a reduction in freight charges. It may weigh half as much as lead-paper cable. Also, being lighter, smaller and fewer poles are needed for aerial service.

CIRCLE NO 42 ON INQUIRY CARD-PAGE 17



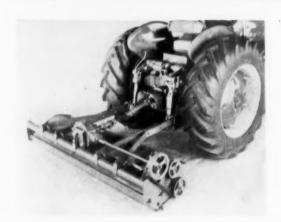




Crack-Free Chromium Increases Service Life of Rolls By 400%

One of the nation's leading fabric manufacturers was able to increase service life of large feeder rolls by 400% and at the same time reduce thickness of chromium plate by 95%, by switching to Unichrome crack-free chromium. Under exceptionally humid operating conditions, the minute cracks present in all ordinary chromium plate served as a threshold for corrosion.

CIRCLE NO. 43 ON INQUIRY CARD-PAGE 17



Structural Grade Pipe Saves 15-20% in Manufacturing Costs

C. W. Mott Research Engineers used structural grade pipe in manufacturing the Hammer-Knife mower, in place of test pipe. The pipe, supplied by L. B. Foster Company went into the knife housing frame, drive shafthousing, lift shafts, towing frame and steering handle. The company reports its material costs were reduced 15-20% by the switch.

CIRCLE NO. 44 ON INQUIRY CARD-PAGE 17



Molding Compound Boosts Damage Resistance

H. A. Selmer, manufacturer of musical instruments, has found that the purity of tone in their Bundy Resonite Clarinet is due partly to the acoustical qualities of its plastic body. Especially produced for students, this Bundy instrument is 250% more resistant to damage from knocking or dropping. Machining, sanding and buffing are all that is necessary to produce these smooth-finish moisture-resistant parts. The phenolic molding compound is manufactured by Durez Plastic Division of Hooker Electrochemical Company.

CIRCLE NO. 45 ON INQUIRY CARD-PAGE 17

Studs for VELWELD process machined from Youngstown cold finished bars

method for fast, dependable end-welding of studs to steel surfaces. This novel electric arc process—utilizing flux-filled steel studs—substantially reduces direct fastening costs when used to replace conventional time-consuming methods such as drilling, tapping, hard welding, through-bolting or the securing of straps and rivets.

To maintain their world-wide reputation for product quality and uniformity, Nelson Stud

To maintain their world-wide reputation for product quality and uniformity, Nelson Stud Welding, a division of Gregory Industries, Inc., uses Youngstown Cold Finished Bars as the basic material for stud production.

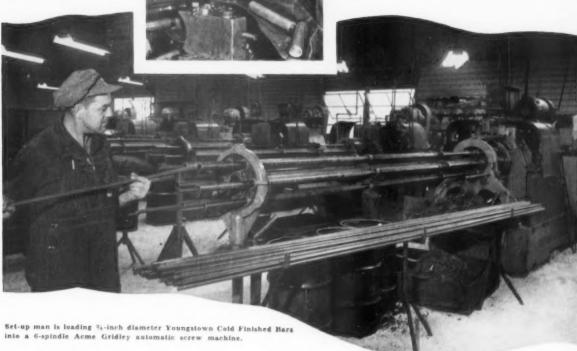
Progressive fabricators rely on the Nelweld

Youngstown Cold Finished Bars provide high machinability and greater uniformity of composition, structure and surface finish to help you increase production of more uniform parts. Always specify Youngstown—it's your best assurance of quality.

Why not call or write your nearest Youngstown District Sales Office today for additional information or metallurgical assistance?

Close-up of studs being bored to accommodate their charge of flux (top collet) and then cut-off (center collet). Two finished Nelweld studs, shown in the pan in foreground, were machined simultaneously in the 6-position machine. First operation—feed out and face; second—bore; and third—cut-off.





THE YOUNGSTOWN SHEET AND TUBE COMPANY

Manufacturers of Carbon, Alloy and Yoloy Steel General Offices - Youngstown 1, Ohio District Sales Offices in Principal Cities



Cold finished bars

Now semi-finish machined all over

to save your machining time and reduce waste



14 New Sizes! Sizes now range from 14" to 8" I.D.,

Purchasing Simplified! Stated sizes are now the

New Convenience! Finish allowance, 1/10" on the diameter, both O.D. and I.D. You need make only

Same Dependability! Ampoo Metal Grade 18 is a unique aluminum-bronze alloy that resists wear, withstands shock and impact, lasts many times longer than ordinary bronzes. Ideal for bearings, bushings, gears,

Stock the sizes you ordinarily use in maintenance and tooling — and get other sizes promptly from your

AMPCO METAL GRADE 18 CENTRIFUGALLY CAST STOCK BARS

finish-machine cuts.

other parts.

1%" to 10" O.D. 12%" lengths.

sizes to which bars will finish.



Ampco Grade 18 Stock Bars are now labeled on one end, for convenience in stocking. Labels show I.D. and O.D. sizes to which bars finish.

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Write today for new stock list.

PROVED BY INDEPENDENT LABORATORY TESTS:

62% S-M-1

for FERROCARBO°-TREATED IRON





Progressive foundrymen seeking to improve the machinability and quality of gray iron and malleable iron castings can now rely upon FERRO-CARBO-the patented additive in briquette form - by CARBORUNDUM. Tests by a widely-known independent research organization, have proved conclusively that the addition of FERROCARBO® to the cupola charge results in finer-grained, denser, and stronger castings with a machinability improvement factor as high as 62% over untreated iron. The better dispersal action of FERROCARBO and the resulting better machinability of the iron, are your assurance of a better satisfied customer.

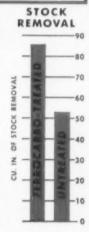
* Surface Machinability Improvement

HOW TESTS WERE CONDUCTED

Tool-wear tests were conducted on metal cast in leading foundries across the country, using untreated iron and Ferrocarbo-treated iron of identical or similar chemistry. Both were machined at commercial speeds using a single point "Carboloy," grade 44A tool. Tool life was determined by measuring wear on the flank of the tool with a 100-power microscope. The charts at the right show actual test data as reported.

WRITE FOR MORE INFORMATION on how FERROCARBO produces more machinable iron regardless of metal composition. Ask for booklet — Form A-1409 — Electro Minerals Division, The Carborundum Company, Niagara Falls, New York.

Chemical Analyses	Untreated	Ferrocarbe	
c	3.57	3.56	
Si	2.25	2.26	
S	.10	.10	
Mn	.68	.66	
P	.11	.11	
Cutting speed (ft./min.)	300	300	
Feed (in./rev.)	.009	.009	
Depth of Cut (in.)	.062	.062	
Wear land (in.)	015	.015	
Vol. of metal removed (cu. in.)	53	86	
Weight of metal removed (lbs.)	13.7	22.2	
Per Cent improvement		62%	



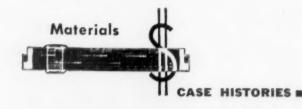
VISIT OUR BOOTH

at the 1st Engineered Castings Show (Booth 202) Cincinnati, May 6-10. 1

ELECTRO MINERALS DIVISION

The CARBORUNDUM Company

FERROCARGO DISTRIBUTORS - KERCHNER, MARSHALL & CO., PITTSBURGH * Cleveland * Buffalo * Philadelphia * Birmingham * Los Angeles * Canada MILLER & COMPANY, CHICAGO * St. Louis * Cincinnati





New Tubing Cuts Material, Labor Costs by 55%—60%

A leading manufacturer of deep well water systems reports a 55-60% savings in material and labor by using a specially processed polyamide tubing on a line of ejector type water pumps. Principal savings stem from the fact that the corrosion resistant tubing, supplied by The Polymer Corporation of Pennsylvania requires no deburring or prebending as was necessary with the copper tubing formerly used.

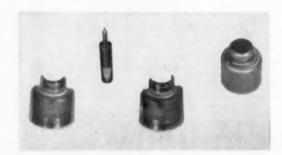
CIRCLE NO. 46 ON INQUIRY CARD-PAGE 17



Bond Strength of Corrugated Board Increased 8.7%

Addition of an aluminum silicate pigment to the glue formula at the mid-west plant of a leading corrugated box manufacturer increased bond strength of 38-47 lb. kraft, straw medium board an average of 8.7% over the previous average for the same board. The additive employed, ASP 400, is an inert, highly refined, aluminum silicate pigment produced by Minerals & Chemicals Corporation of America.

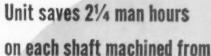
CIRCLE NO. 47 ON INQUIRY CARD-PAGE 17



Toolmaker Uses One Punch A Day Instead of 12

An Ohio manufacturer saved \$60 a day in the cost of making punches for piercing and counter-sinking a small hole in a part made from SAE 1010 deep drawing steel. Since the material was twice as thick as the diameter of the punch, the punches had to be exceptionally tough to stand the gaff of consant production. The company changed to Carpenter R.D.S., a tough and non-deforming tool steel produced by the Carpenter Steel Company. Now the shop uses one punch a day instead of twelve.

CIRCLE NO. 48 ON INQUIRY CARD-PAGE 17







Unit Crane & Shovel Corporation, Milwaukee, "lowered the boom" on costs by using OSTUCO tubing for vertical traction shafts in its line of heavy construction equipment. By eliminating a center-boring operation, Unit saved 21/4 hours machining time on each shaft.

OSTUCO tubing has tremendous strength to absorb the constant shock and strain to which Unit equipment is normally subjected and machines easily to precision tolerances.

Cash in on the economy of OSTUCO'S unique "Single-Source-Service" - complete tubing facilities "under one roof"-by contacting your nearest OSTUCO sales office.



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SEAMLESS AND ELECTRIC-RESISTANCE WELDED STEEL TUBING-Fabricating and forging

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CANADA, RAILWAY & POWER ENGR. CORP., LTD. EXPORT: COPPERWELD STEEL INTERNATIONAL COMPANY 225 Broadway, New York 7, New York

For More Information Circle No. 180 on Inquiry Card-Page 17



"Shipshape and Bristol-Tashion"

That's what was said, around the world, about the old clipper ships from Bristol, England. It simply meant that their cargoes were delivered as ordered, when ordered... and always in good order.

And that's exactly what "Bristol-Fashion" means today, as applied to Bristol Brass strip, rod and wire. For whether you make precision instruments or costume jewelry, Bristol will give you exactly the alloy you need, physically and dimensionally right, shipment after shipment. Test this as toughly as you can . . . you will meet with a new experience in quality and personal service.

and for BRASS FORGINGS, too . . . get them from . . . ACCURATE BRASS CORP. (Subsidiary of The Bristol Brass Corp.) now in a new and modern plant at Bristol, Conn.



The BRISTOL BRASS

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Bristol Brass has affices and warehouses in Boston, Buffalo, Chicago, Cleveland, Dayton, Detroit, Milwaukee, New York, Philadelphia, Pittsburgh, Rochester, Syracuse.

For More Information Circle No. 188 on Inquiry Card—Page 17 For M

For More Information Circle No. 181 on Inquiry Caré—Page 17→
PURCHASING

Seauty

for the life of the car

1957

Automobile trim of Superior Stainless strip steel

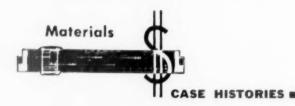
You can't tell the age of a car by its stainless steel! After a thousand or two hundred thousand miles of driving, Superior Stainless gleams good as new.

• Enjoy the beauty of stainless on the cars you buy—costs you nothing in care, gives you everything in pride and pleasure!

Superior Steel

CORPORATION

CARNEGIE, PENNSYLVANIA





Parts of Nylon Powder Outwear Components of Other Material

Fibrous and carbon components tested in aircraft fuel pumps made by William R. Whittaker Co., Ltd., showed wear from abrasives that find their way into the fuel. A new nylon powder, Nylatron "GS", distributed by National Polymer Products, Inc., was tested on 11 parts in the pump. After 100 hours of testing, the parts made from the new powder showed no discernible wear, due to their low coefficient of friction and wear resistance.

CIRCLE NO. 49 ON INQUIRY CARD-PAGE 17



Change to Harder Material Increases Tool Life 30%

On a boring application on a clutch housing, a manufacturer recently increased tool life while decreasing re-setting time by replacing a brazed type tool with a Firthite Thriftool. Using the Thriftool, this manufacturer was able to change from Firthite HA, which was used on the brazed tool, to the harder Firthite HE. Outcome of the change was a 30% increase in tool life and a 20% reduction in setting time. A simple indexing of the insert to the next cutting edge is all that is required.

CIRCLE NO. 50 ON INQUIRY CARD-PAGE 17



Plastic Junction Box Outlasts Building

Metal junction boxes for electrical outlets have rusted and corroded, opening the way to electrical breakdowns. But boxes made of Fiberglas-reinforced polyester molding compound have outlasted the buildings they were installed in. Boxes made of the material won't rust, corrode, or absorb moisture. They're light, easy to handle and won't break during shipping or installation.

CIRCLE NO. 51 ON INQUIRY CARD-PAGE 17



1. Wolverine Capilator Catalog



2. Aluminum Tube Catalog



3. Opportunities Unlimited



4. Wolverine Trufin Catalog



5. Spun End Catalog



6. Measure of Tubemanship



7. Wolverine Capilator Booklet



8. Process Flowsheets



9. Copper Refrigeration Tube Booklet



14. Wolverine Corrosion Chart

When it comes to tube... come to Wolverine

From Wolverine, manufacturers can obtain a great variety of tubular products. These range from such products as tiny, plug-drawn Wolverine Capilator* used for restriction purposes, to commercial copper and aluminum tube up to six inches in diameter.

Illustrated on this page—and reading like tubing's "best seller list"—is the latest Wolverine Tube literature dealing with all the company's products and specialized services. Look these catalogs over. The coupon, below, will bring you the catalog—or catalogs—of your choice without delay . . . or obligation. Get it into the mail today!

WOLVERINE TUBE

1427 CENTRAL AVE., DETROIT 9, MICH.



10. Condenser Tube Catalog



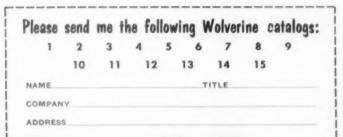
11. Commercial and Condenser Tube Catalog



12. Fabricated Tubular Parts Catalog



 Wolverine Copper Water Tube Catalog



PLANTS IN DETROIT, MICHIGAN, AND DECATUR, ALABAMA.

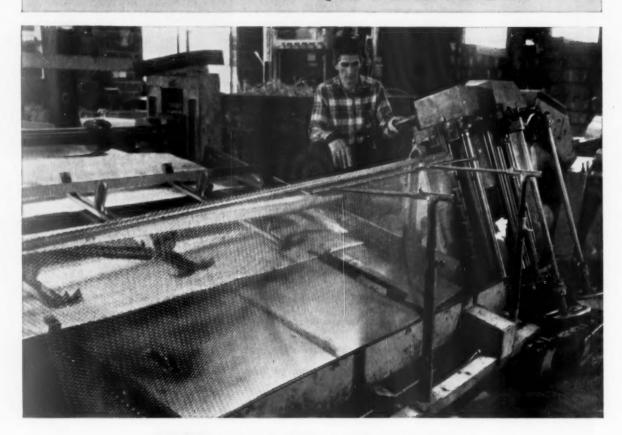
SALES OFFICES IN PRINCIPAL CITIES.

EXPORT DEPARTMENT, 13 EAST 40TH STREET, NEW YORK 18, NEW YORK



For More Information Circle No. 182 on Inquiry Card-Page 17

MATERIAL SELECTION



Pulling a Bethcon sheet apart without damage to the galvanizing

Take a 9-in. strip of galvanized steel, cut slits in it about 1/16-in apart, then expand it into a lattice-like sheet 27 in. wide—and you have metal lath. Who would suppose that galvanized steel could take such punishment?

Yet that's just what is happening here to a 25-ga sheet of Bethcon galvanized steel. It's probably the most torturous test that a galvanized sheet has ever been subjected to. Naturally, the steel must be strong yet ductile, neither too hard nor too soft. The coating of zinc must be tight enough not to come off under the twisting action which takes place in the expanding operation.

You couldn't do this with just any old galvanized sheet, yet Bethcon comes through the ordeal with a smile. That's because Bethcon is galvanized by Bethlehem's continuous process, which bonds zinc to steel so tightly that the coating won't crack even when the sheet is doubled back on itself. This process also includes continuous annealing, which gives the basic steel a fine equiaxed grain for just the ductility needed.

Continuous galvanizing also makes Bethcon available in coils as well as cut lengths, which opens up the doors to long-run production economies. It also means that Bethcon can be used in making long-length products not feasible with conventional hot-dipped sheets.

In other words, in Bethcon designers have a remarkably good material to work with. Its low cost, easy formability, strength—these and other advantages are firing the imagination of design and production men throughout the metal manufacturing industry.

Perhaps the combination of steel's strength and zinc's resistance to corrosion, as embodied in Bethcon sheets, might prove the answer to a problem of yours. Our nearest sales office will be glad to lend a hand on the project.

BETHLEHEM STEEL COMPANY, BETHLEHEM, PA.
On the Pacific Coast Bethlehem products are sold by Bethlehem Pacific Coast
Steel Corporation. Export Distributor: Bethlehem Steel Export Corporation



One way to be a Hero to your management



If your shop spends heavily for bronze for replacement bearings, you can save money and provide much better performance by recommending ASARCO Continuous-Cast Bronze.

ASARCON Bronzes are entirely unlike anything else you can buy for several reasons:

(1) Though ASARCO continuous cast bronzes conform to SAE, ASTM and Government specifications, their performance is far superior to sand-cast or permanent mold alloys. For example:

	Typical Yield Strength	Typical Impact Strength	Typical Fatigue Strength
ASARCON 773 (SAE 660)	27,000 psi	12.6 ftlbs.	20,000 psi
Sand-Cast SAE 660	19,500 psi	9.3 ftlbs.	12,200 psi
Permanent Mold SAE 660	21,900 psi	10.4 ftlbs.	14,500 psi

(2) ASARCON bronzes come in lengths up to 105 inches. You can order the lengths that will minimize your short-end scrap, or lengths cut exactly to your requirements.

ASARCON 773 (SAE 660) is carried in stock by distributors in all major industrial areas.

You can do a lot to keep production and shop costs down. Just call your ASARCO salesman or distributor or talk to him the next time he drops around. Or you can write us directly for full information about the product and the process.



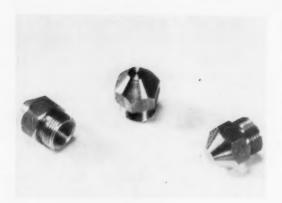
Continuous-Cast Products Department

AMERICAN SMELTING AND REFINING COMPANY

Perth Amboy Plant, Barber, New Jersey . Whiting, Indiana

WEST COAST SALES AGENT: Kingwell Bros. Ltd., 457 Minna St., San Francisco IN CANADA: Federated Metals Canada, Ltd., Toronte and Montreal





Alloy Steel Boost Output Cuts Costs by 25%

A Pennsylvania metalworking plant making stainless steel oil burner nozzles changed from a standard to a modified analysis of the same alloy and reduced costs 25%, obtained higher production and got fewer rejects. Since the nozzles are used in the annealed condition and do not have to be heat treated, the company changed to Carpenter Stainless No. 5-F, a modified Type 416 stainless. Machining time was reduced to eleven seconds per piece and rejects are down about 15%.

CIRCLE NO. 52 ON INQUIRY CARD-PAGE 17



Improved Molding Resins Help Double Output

Twice as many aluminum castings, produced at lower unit cost, resulted when a chain link fence manufacturer did his own shell molding with Bakelite phenolic resins. Shell molding was chosen because of the possibility for unit cost savings from integrated, flexible production with reduced labor and fewer finishing operations. Instead of machining out holes for attaching fittings to fence posts, the company uses cores of the same Bakelite phenolic material to cast fittings.

CIRCLE NO. 53 ON INQUIRY CARD-PAGE 17



Specially Processed Tubing Increases Production 25%

Savings in production time and labor were the results of a switch by Bearings Company of America to a specially processed steel tubing. Better machineability raised production of clutch release bearing collars per eight-hour shift from 675 to 840 units. It lowered production time per 1,000 units from 12.35 to 10.03 hours. Beside the savings in time and labor, the company turned out collars with a finish of improved quality which eliminated further machining.

CIRCLE NO. 54 ON INQUIRY CARD-PAGE 17



How measure the impact of micro-meteorites on the first "Earth Satellite"?

When physicists at the U.S. Naval Research Laboratory consider an instrument or a material to record accurately the secrets of outer space-it's not size alone that counts, but dependable, reliable precision.

The strip of "Nichrome"* evaporated on glass ("A" in the photo above) which may be fitted to the outer skin of the Satellite, measures only ¼" wide x 1½" long. Its thickness: 100 Angstrom units (1/10,000 mm). Its function: to measure the surface erosion caused by the impact of micro-meteorites. The resistance of the Nichrome ribbon increases as the film becomes pitted by meteor particles.

"Nichrome is being considered for making this gage," states the Naval Re-search Laboratory, "because it supplies electrical resistance in a desirable range; adheres satisfactorily to glass in thin film form; and has a very low thermal coefficient of resistance."

There'll be no one on hand, 300 miles

out in space, to check on or supervise the performance of the Nichrome strip. Nichrome needs no one. It will do its job dependably there-just as it will in your electronic or electrical equipment, after it is in your customers' hands.

And remember, Nichrome is only one of the 132 special purpose alloys developed by Driver-Harris since 1899 for electrical heating, resistance, and electronic applications. Do you need a special alloy? Send us your specifications.

*T.M. Reg. U.S. Pat. Off.



Driver-Harris HARRISON, NEW JERSEY

BRANCHES: Chicago, Detroit, Cleveland, Louisville, Los Angeles, San Francisco In Canada: The B. GREENING WIRE COMPANY, Ltd., Hamilton, Ontario

MAKERS OF THE MOST COMPLETE LINE OF ELECTRIC HEATING, RESISTANCE, AND ELECTRONIC ALLOYS IN THE WORLD

For More Information Circle No. 184 on Inquiry Card-Page 17



...the shapers of things to come —

ALLEGHENY LUDLUM HIGH SPEED STEEL TOOL BITS



In a complete range of tungsten, moly, cobalt, and high vanadium types

> PANTHER 5 SUPER PANTHER PANTHER SPECIAL ML, LXX, SUPER DBL DBL-3 AND DBL-2

Cut to length . . . bevelled both ends . . . heat-treated to perfection. Just shape the point and you're all ready to go . . . A-L Tool Bits are the last word in convenience.

Made in a complete range of tungsten and moly high speed steels . . . including the new cobalt and high vanadium types that offer superior red hardness, wear-resisting and cutting properties.

Furnished in Standard finish or the popular Ground finish which is extremely accurate in dimension and free from decarburization and scale.

For real Johnny-on-the-spot service on the finest tool bits obtainable, call your local A-L office or distributor...
TODAY! • Allegheny Ludlum Steel Corporation, Oliver Building, Pittsburgh 22, Pa.



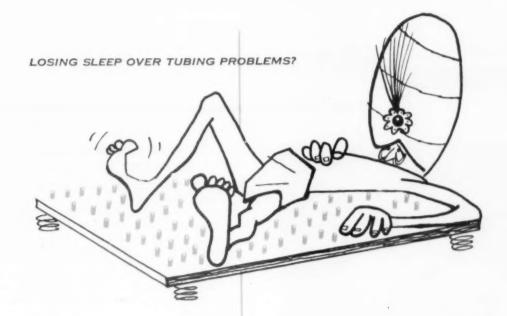


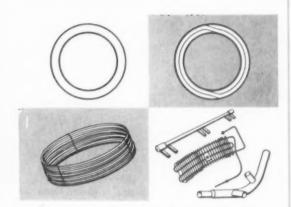


For complete MODERN Tooling, call Allegheny Ludlum

FINE TOOL STEELS SINCE 1854

For More Information Circle No. 190 on Inquiry Card-Page 17





GM Steel Tubing is available in single wall welded, double wall brazed... in continuous 2000-ft. coils or finished and fabricated to specifications!

GET "COSTLY-METALS" PERFORMANCE . . . PLUS TYPICAL GM STEEL TUBING SAVINGS!

Why pay for more performance than you need or can possibly get? Costly metals are still being used every day in applications where rugged, dependable GM Steel Tubing does the job as well, or better, at almost half the cost.

For instance, where cleanliness counts, Rochester will guarantee you the cleanest tubing you can buy at any price! Consult Rochester Engineering. We'll be glad to consider your tubing problems and show you wherever GM Steel Tubing can help you cut costs. Just write us direct or call your Rochester Products Sales Engineer.

GM STEEL TUBING BY

ROCHESTER

PRODUCTS

DIVISION OF

GENERAL MOTORS

CORPORATION

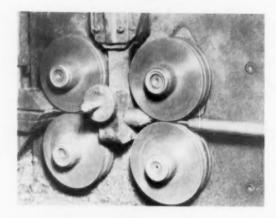
ROCHESTER N.Y.

For More Information Circle No. 185 on Inquiry Card-Page 17





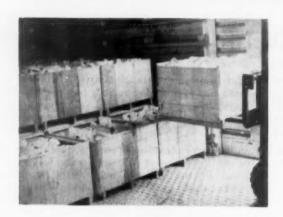
CASE HISTORIES



Feed Rolls Now Last 36 Months Instead of 7

Carbon Steel feed rolls at Marquette Manufacturing Company lasted only seven months even when serviced constantly. But replacements made of Cromovan are still going strong after 36 months of use and no servicing. Four feed rolls guide fourteen inch welding rods (stainless, carbon, and alloy steel) into a flux coating machine at 700 ft per minute and 76,000,000 rods passed through them with only .002 inch groove wear and no down time for redressing.

CIRCLE NO. 55 ON INQUIRY CARD-PAGE 17



Boxed Soda Ash Reduces Unloading Time by 90%

A Michigan foundry was purchasing several carloads a year of fused soda ash in the form of two-pound pigs. The material was received in 100-pound bags. Four men and a truck required eight hours to unload one car and store the bags about 400 feet away. By accepting delivery of the product in specially designed pallet boxes introduced by the manufacturer, Olin Mathieson Chemical Corporation, the foundry was able to handle the unloading and storage operation with only one man in less than three hours.

CIRCLE NO. 56 ON INQUIRY CARD-PAGE 17



Material Change Ups Tool Life, Cuts Machining

SKF Industries changed the type of brass strip it was using for roller bearing cages. The change brought these results: one operation has been eliminated; less machining is required; tool life has been increased; burrs have been greatly reduced; life of punch used in notching has been doubled; machining speeds and feeds have been increased; considerable work has been eliminated in setting up tools.

CIRCLE NO. 57 ON INQUIRY CARD-PAGE 17

For More Information Circle No. 186
on Inquiry Card—Page 17->
Purchasing

it's easy now to recognize superior quality



brass and aluminum

bearing this new trademark identification



made bottor to bring out the BEST in your products

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MILL PRODUCTS DIVISION
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PHONE PLAZA 4-1171

to this

SCOVILL

SCOL

BRASS STRIP and SHEET

Cold colled from inherently SOUND and UNIFORM bar castings produced by the unique Scovill engineered FLAT METAL CONTINUOUS CASTING process, assuring fabricators dependable uniformity in alloy composition, temper and grain size... freedom from internal or mechanical defects... in the industry's longest weld free coils when needed... with rapid deliveries from fast production cycles. These and many other Scovill PLUS VALUES, including new modern packaging, are designed to

bring out the BEST in your fabricated products

Scovill Manufacturing Company, Mill Products Division, 99 Mill Street. Waterbury 20, Connecticut. Phone Plaza 4-1171.



Have a metal turning problem?

THE SOLUTION MAY BE A FAMOUS REX HIGH SPEED STEEL. REX IS THE STANDARD BY WHICH ALL HIGH SPEED STEELS ARE COMPARED — AND IT'S AVAILABLE FROM ALL LOCAL CRUCIBLE WAREHOUSE STOCKS.

Crucible REX M2-S, for example, has a wide hardening range. Although REX M2-S costs less, its red hardness is equal to the 18-4-1 type. And its superior toughness and good wear-resistance help make it ideal for many cutting, turning and broaching operations.

REX is just one of dozens of tool steel grades and types regularly stocked at all local Crucible warehouses.

What's more, Crucible warehouse service offers you unlimited assistance in selection or fabrication of special steels. And Crucible is the only specialty steel producer fully integrated to the point of use. That means control and responsibility from raw material to warehouse delivery to you.

STOCKS MAINTAINED OF:

Rex High Speed Steel . . . ALL grades of Tool Steel (including Die Casting Die and Plastic Mold Steel, Drill Rod, Tool Bits, and Hollow Tool Steel Bars) . . . Stainless Steel (Sheets, Bars, Wire, Billets, Electrodes) . . . Max-el, HY-Tuf, AISI Alloy . . . Onyx Spring, Hollow Drill Steel and other special purpose steels.



See us at N.A.P.A. Inform A Shaw Atlantic City, May 26-29 Booths 1, 2, 3, 4.

WAREHOUSE SERVICE

Crucible Steel Company of America

General Sales Offices, The Oliver Building, Mellon Square, Pittsburgh 22, Pa. Branch Offices and Warehouses: Atlanta • Baltimore Boston • Buffalo • Charlotte • Chicago • Cincinnati • Cleveland • Dallas • Dayton • Denver • Detroit • Grand Rapids Harrison • Houston • Indianapolis • Los Angeles • Milwaukee • New Haven • New York • Philadelphia • Pittsburgh • Portland, Ore.

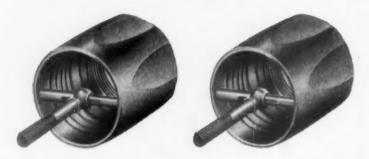
Providence • Rockford • San Francisco • Seattle • Springfield, Mass. • St. Louis • St. Paul • Syracuse • Toronto, Ont.

For More Information Circle No. 700 on Inquiry Card-Page 17

STATISTICAL QUALITY CONTROL HISTOGRAMS prove the consistent uniformity of

MUELLER BRASS CO. S-C (SUPER-CUTTING) ROD

on internal forming operations



TOLERANCE		REGULAR	S-C (SUPER-CUTTING) SEMI-CONTINUOUS CAST ROD	
+4	-6.0	//		
+2	-3.9	### ///		
+0	-1.9	HH+ HH HH+ HH+ /1	HH [III	
-1	-1.9	HH HH HH III	HH HH HH IIII	
-2	-3.9	HH HH HH 1	HIT HIS 1914 HIS SHE NO SHE SHE SHE SHE	
-4.0	-5.9	1441	HH HH HH	
6.0	-7.9	1		

The consistent uniformity of Mueller Brass Co. S-C (super-cutting) rod, which is produced semi-continuously, is clearly demonstrated in the histogram shown above. Comparison tests were made on a hydraulic fitting produced both from conventional method rod and S-C rod. The internal formed diameter of this fitting required a fairly close dimensional tolerance, which is difficult to control. When rod made by the conventional method was machined, the parts could not be held within the specified tolerance range. Using the same machine and tooling, along with Mueller Brass Co. S-C rod, the machined parts were well within the required tolerance range. In another instance, an equipment manufacturer using forgings from S-C rod recently reported that approximately 50% less tool trouble occurred per 1000 forgings than with forgings made from conventional rod. Why not let new Super-Cutting Rod prove its excellent uniform cutting qualities for you... your products deserve the best.

WRITE TODAY for your copy of engineering manual No.FM-3010"COPPERBASEALLOYS IN ROD FORM". This fact-filled book contains full information on alloys, characteristics and properties, machining information and other data.







MUELLER BRASS CO.

PORT HURON 30, MICHIGAN

For More Information Circle No. 701 on Inquiry Card-Page 17

Nylon Solves Tube Bending Problems



Metallic tubes for aircraft, made by Douglas Aircraft Co., must be bent to various configurations, maintaining their inside diameter and preventing collapse. Use of nylon tube bending mandrels has resulted in considerable savings of money and assembly time. A segmented ball mandrel of 1" diameter is reported to cost only one-third as much fabricated from nylon as from the original polished steel. In addition, the nylon mandrel was cut, formed and assembled by Douglas in five hours. The original steel mandrel required seven days for delivery. Polypenco rod stock, supplied by The Polymer Corp. of Pennsylvania was used for parts for the mandrel.

Circle No. 79 on Inquiry Card-Page 17

Change from Pipe to Hose Saves 20%

Galvanized pipe was being used by a grain processor to move barley, oats and wheat from bins to grinders. Severe abrasion made pipe repairs or complete replacement necessary every three to eight weeks. The processor switched to a custom-designed dry material hose, made by Goodyear Tire & Rubber Co. At last report the hose had served two years, providing an over-all savings of 20%—and it's still serviceable.

Circle No. 80 on Inquiry Card-Page 17

For More Information Circle No. 702 on Inquiry Card—Page 17→

PURCHASING



AN EXAMPLE OF ALCHEMY

Transmutation of machine chips (background to foreground) from base steel to pure profit

The chips in the foreground aren't really gold - but they are the next best thing if you do extensive machining on circular forgings. They're Hi-Qua-Led Steel They are also the same grade steel as the chips in the background — 4140. You can see the great difference, but let us tell you something about it, too.

An initial production run in a customer's plant - using a Fellows gear shaper - produced both sets of chips. The regular 4140 steel forging had a Bhn of 285; the 41L40 Hi-Qua-Led Steel forging in the same grade had a Bhn of 285 to 293. Here are the results:

The savings shown in this particular test are typical of Hi-Qua-Led's performance in many applications. Further, when you use Hi-Qua-Led circular forgings you do not sacrifice any regular steel quality. Hi-Qua-Led in any AISI grade has the same attributes as regular steel of the same

Investigate the possibilities of Hi-Qua-Led Steel in circular forgings from 18- to 145-in. OD. ALCO specialists will visit your plant to help you save the most from its machining potentials. Contact your nearest ALCO sales office, or write Spring & Forge Division, Dept. OCF-7, P. O. Box 1065, Schenectady 1, N. Y. for brochures.

Machining time saved: 11/2 hours or 43 per cent per gear.

4140 Steel 41L40 Hi-Qua-Led Steel

Roughing cut

Finish cut

50-60 sfm 80-85 sfm 0.0145 feed 0.0176 feed

0.530 depth of cut 0.533 - 0.538 depth of cut

50-60 sfm 100 sfm 0.0145 feed 0.0176 feed 0.033 depth of cut 0.025-0.030 depth of cut

(no tool breakage)

State of finish regular super-finished Total machining time 3½ hr average per gear 2 hr average per gear (excluding down time for

tool breakage)

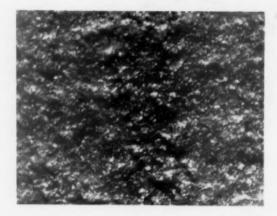
ALCO

ALCO PRODUCTS, INC.

Sales Offices in Principal Cities



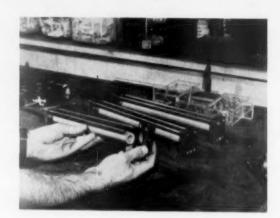
CASE HISTORIES



New Phosphate Coating Ups Quality, Saves \$35,000 A Year

High cost of phosphatizing prior to painting in a bus assembly plant led to cleaning and overhauling of the phosphatizing line and new maintenance procedures. In addition, a new detergent-type iron phosphate coating was substituted, greatly increasing coating quality. Results: better finishes, improved operational efficiency, and an annual reduction in cost of phosphatizing materials of \$35,000. Products and services were from Metal Processing Dept., Pennsalt Chemicals.

CIRCLE NO. 58 ON INQUIRY CARD-PAGE 17



Switch to Tubing Saves \$1.23/Unit

The Simco Company now saves up to \$1.23 per unit in production costs on its shockless static bars by fabricating them from cold drawn tubing instead of solid rods. This saving was brought about by elimination of the centering and drilling operation required when solid rods were used. The metal ground rods are fabricated from stainless tubing supplied by Superior Tube Company.

CIRCLE NO. 59 ON INQUIRY CARD-PAGE 17

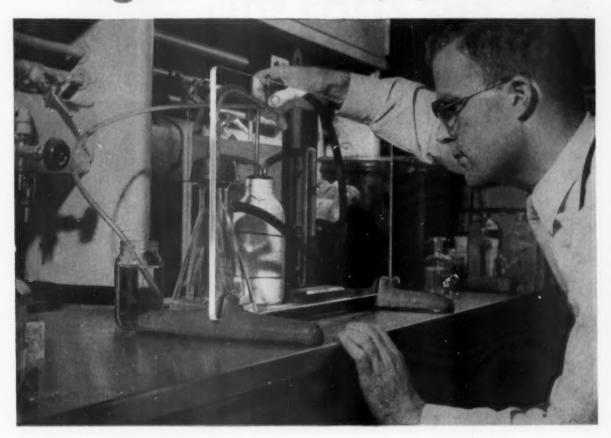


Plastic Emblems Outlast Metal, Cost 50% Less

Chris-Craft has chosen emblems formed from pearlescent cast acrylic sheet for its 1957 cruiser line. They replace conventional chromed bronze or anodized aluminum ornaments—at one half the cost. They also provide superior wearing qualities, greater design flexibility and substantial savings in weight. The sheet and emblems are produced by Cadillac Plastic & Chemical Co.

CIRCLE NO. 60 ON INQUIRY CARD-PAGE 17

Plexiglas...useful in so many ways around the plant



For safety guards, protective covers, inspection windows, glazing and many other industrial plant uses, PLEXIGLAS® acrylic plastic is a mighty handy material.

PLEXIGLAS is crystal clear and highly impact-resistant. It can be formed to almost any shape, and machined like wood or soft metals. PLEXIGLAS resists corrosive atmospheres . . . weather . . . breakage . . . and has excellent electrical properties.

Does the availability of a material with this combination of advantages suggest ways in which it could solve operating and maintenance problems in *your* plant? Your nearest PLEXIGLAS dealer will be glad to be of service. Ask him about PLEXIGLAS R, the lower-cost grade that is so suitable for industrial applications.



Chemicals for Industry

ROHM & HAAS

WASHINGTON SQUARE, PHILADELPHIA S, PA.

Representatives in principal foreign countries



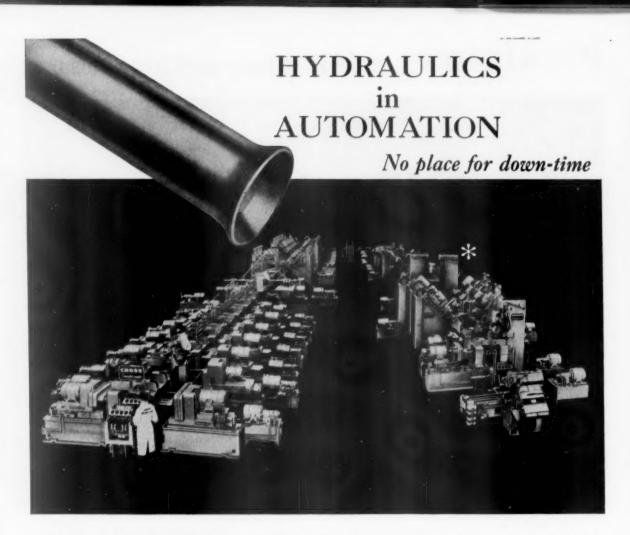
Curved hood of transparent PLEXIGLAS on conveyor line gives clear view of packaging process, protects contents of open packages.



Formed PLEXIGLAS cover on demonstration model of milk homogeniter permits safe inspection of machine parts in operation.

PLEXIGLAS dealers maintain stocks of clear and colored material for prompt delivery, can supply detailed information and expert advice on specific uses. They are listed under PLEXIGLAS in the Plastics section of telephone directories of most large cities.

Canadian Distributor: Crystal Glass & Plattics, Ltd. 130 Queen's Quay East, Toronto, Ontario, Canada



that's why CROSS specifies HYDRALUSTER tubing exclusively!

Hydraluster tubing is carrying the vital load of hydraulic transmission in this 350 ft. Cross transfer machine. Hydraluster is there because *every* part and assembly has to be 100 per cent dependable. There is too much at stake for anything less.

Why does Hydraluster get the call? . . . because it is a revolutionary improvement over any previous type of hydraulic tubing. *Inside*, Hydraluster has a new type of tubing surface, very much like a gun barrel. This smoothness cuts friction and heat, and the result is higher power efficiency and lower reaction times. This new surface is also highly resistant to oxidation and scale . . . added protection for valves, pumps and meters.

Here we quote Mr. Ralph E. Cross, Executive Vice President of The Cross Company. "We've used Summerill Tuhing for years because we felt it was the best. And when Summerill topped even their best with Hydraluster, it was only logical that we go along with the improvement."

*Stations—104. Operations—265 drilling, 6 milling, 21 boring, 56 reaming, 101 countersinking, 106 tapping, and 133 inspection.

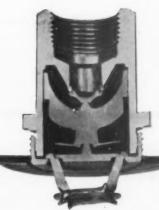
SAMPLES and SPECIFICATIONS: Examine Hydraluster right at your desk or board. Your name on company stationery will bring samples and specifications.



Tubing Company Division-Columbia Steel & Shafting Co.

PITTSBURGH 30, PA. DEPT. NO. 5-13

Dayton • Hartford • Los Angeles • Philadelphia • Pittsburgh • Milwaukee • San Francisco



"Automatic" Sprinkler CUTS COSTS 20%

(Left) CUT-AWAY view of the recessed Sprinkler head made by "AUTOMATIC" SPRIN-KLER CORPORATION OF AMERICA, Youngstown, Ohio.

(Right) UNRETOUCHED PHOTO of Revere Brass Forging sprinkler body before machining, enlarged to show detail.

... by switching to

REVERE BRASS FORGINGS



THIS STORE is a typical example of how the "Automatic 400" Ceiling Sprinkler fits into modern decor, extending approximately only about \(\psi' \) below the ceiling line.



The sprinkler body you see above was originally made of cast bronze. In order to obtain the close tolerances required, the casting had to be excessively machined. In addition, each casting, after machining and prior to assembly, had to be pressure tested. Due to porosity many castings failed and rejects piled up.

Engineers of the "Automatic" Sprinkler Corporation of America consulted with Revere's Technical Advisory Service and as a result asked Revere to make up a forging. After extensive tests, the Revere Brass Forging was adopted, because it was found that closer tolerances with a minimum of machining were possible, elimination of sand holes did away with rejects entirely, pressure testing was no longer necessary and better appearance made a more sales-appealing product.

Here you have still another money-saving example of Revere supplying the right metal in the right form to do the best possible job with the greatest economy . . . whether it is brass, copper or aluminum or any one of their alloys. Perhaps Revere can help you,

REVERE COPPER AND BRASS INCORPORATED

Founded by Paul Revere in 1801

Rome Manufacturing Company Division, Rome, N. Y. Sales Offices in Principal Cities, Distributors Everywhere

FOR THIS INFORMATIVE
CATALOG: Address: Revero
Copper and Bress Incorporated,
Rome Manufacturing Company Division, P. O. Box
111, Rome, N.Y.



For More Information Circle No. 705 on Inquiry Card-Page 17



CASE HISTORIES



Processing Materials Saved By Dust Control Unit

Western Rubber Company not only keeps plant atmosphere clean but recovers 35 pounds of material every day with a dust collect r made by Wheelabrator Corp. The material is reclaimed by being added to batches of certain grades of rubber. The dust control system is used on a Banbury mixer. It is made up of hooding over the mixer, a cloth-filtertype dust collector, and duct work between the two.

CIRCLE NO. 61 ON INQUIRY CARD-PAGE 17



Welded Steel Tubing Does Job for 46% Less Than Seamless

Searching for ways to cut component costs without sacrificing quality, Lenk Mfg. Co. replaced seamless low carbon tubing with Revere welded steel tubing. The tubing, used for the tubular section of a torch was purchased at a 46% saving over the seamless product. Lenk has also found that the welded tubing is easy to plate, bend and fabricate.

CIRCLE NO. 62 ON INQUIRY CARD-PAGE 17



Polyvinyl Chloride Used To Replace Cast Iron Pipe

A leading chemical company in the midwest is installing polyvinyl chloride piping wherever possible instead of cast iron pipes to handle corrosive liquid in the plant. It employs conventional bell and spigot fittings where the corresive liquids are conveyed at low pressures. Apart from its corrosive resistant qualities, the PVC pipe costs much less. A 4' length of Schedule 40 PVC 2" pipe costs, for example, \$3.74 against around \$14.50 for an alloy cast iron pipe of the same size. And less time is needed to install the plastic pipe.

CIRCLE NO. 63 ON INQUIRY CARD—PAGE 17

For More Information Circle No. 706
on Inquiry Card—Page 17→

PURCHASING



Just pick up your phone-



get price quotations, expert advice, prompt delivery



from your Superior Warehouse Distributor

Up against a tubing problem? Call your nearest Superior distributor. He's well stocked with quality tubing and information. Often he can make money-saving recommendations. Through his contact with the mill he can expedite information and orders for you. Let him show you why Superior tubing offers you real economy. Call on him today. He can save you valuable time and money.

For general information on Superior tubing, get a free copy of Bulletin 40. Write Superior Tube Company, 2034 Germantown Ave., Norristown, Pa.

Superior Tube

NORRISTOWN, PA.

All analyses .010 to 3, in. OD - certain analyses in light walls up to 23/2 in. OD

For More Information Circle No. 707 on Inquiry Card-Page 17

For More Information Circle No. 708 on Inquiry Card-Page 17-

IN GARDEN TOOLS, TOO,

Tharonsteel Quality

STANDS OUT

Sharon has been a prime supplier of quality steels to the Garden Tool Industry for more than half a century.
 Our metallurgists and engineers have played important roles in the development of the special stainless steels, spring steels, cutting edge steels, forging steels and other quality specialty steels that have enabled the industry to constantly improve product quality.

SHARONSTEEL

SOMOROFF N.Y.

For 56 Years a Quality Name in Steel

SHARON STEEL CORPORATION, SHARON, PENNA.



CASE HISTORIES



Beryllium Copper Alloy Boosts Production 1400%

Use of a special Berylco copper alloy in place of aluminum or chromium-plated iron for core box inserts at Lebanon Steel Foundry increased the production rate of a cast steel part by almost 1400%. In addition, Lebanon reduced the cost of each core by approximately 70%, and eliminated all shutdown time required for core box repair.

CIRCLE NO. 64 ON INQUIRY CARD-PAGE 17



Reinforced Nylon Part Costs 50% Less Than Metal

The "follower" is a very small part on the 1956 Norge washer. It moves into and cut of engagement with a rotating lead screw, moves a set of electrical contacts in the time line control through the various cycles of operation. This component is precision-molded of Fiberglas-reinforced nylon molding compound—at 50% lower cost than a metal casting.

CIRCLE NO. 65 ON INQUIRY CARD-PAGE 17



Cemented Oxide Tooling Material Cuts Machine Downtime

Machining sliding gears for transmissions was a problem for Ford's standard transmission and radiator plant in Dearborn, Mich. Cutting tools had to be changed constantly, cutting cycle per piece was uneconomically long, and twice too many machines provided the parts for production schedules. This happened when carbide tools were used in all tools in the setup. Ford decided to substitute General Electric's cemented oxide on many of its machining operations. Tools are now only changed at intervals of 8 to 16 hours and cutting speed has been increased from 450 to 970 sfm. Monthly machine downtime is 1.87 hours, instead of 4.16

CIRCLE NO. 66 ON INQUIRY CARD-PAGE 17

Helpful Answers to Caustic Questions

As a leading supplier of Caustic Soda, Columbia-Southern is asked many questions each month about this versatile "workhorse" alkali. While the answers probably are not completely new to every Caustic user, they do re-emphasize certain basic points that shouldn't be forgotten. We hope that you will find this series interesting and helpfully informative.

In how many different forms does Caustic come?

The four commonest forms of Caustic are anhydrous solid and flake (available in several particle sizes), and liquid concentrations of 50% and 73% strengths.

How can I determine my most economical Caustic buy?

So much depends on individual processing requirements that any flat answer might be misleading. The most important cost factors for your consideration are the purchase price of the material, transportation costs, unloading costs, labor costs for process handling, and investment cost of equipment required for unloading, storage and process handling. In general, equipment for handling solid or flake Caustic will be least costly, that required for 50% liquor next, and the equipment for handling 73% more expensive. Handling costs per ton of NaOH, however, will be in exactly the reverse order.

A more thorough way to get a clear cost picture of the best Caustic for your needs is to contact Columbia-Southern for the prompt services of our experienced Caustic Soda specialists. Just call, write or wire our Pittsburgh address . . . at no obligation, of course.

Is Caustic dangerous to handle?

Like most other chemicals, Caustic merits proper respect. Shipping improvements like the tank car dome platform (first standardized for all Caustic shipments by Columbia-Southern) have made unloading and initial handling much safer than in the past. As an elementary precaution, fast-valve showers and eye fountains should be readily accessible

to all personnel who might come into contact with Caustic Columbia-Southern will be happy to mail you copies of our up-to-date booklet, *Unloading and Handling Caustic Soda*. This handbook covers in detail such basic points as use of proper protective clothing, inspection of storage and piping facilities, tank car handling, steaming and dissolving procedures, complete stocking of First Aid cabinets, and the like.

Has Caustic Soda been used for a long time?

Caustic has one of the longest chemical pedigrees known. Various authorities agree in placing its earliest use among the Egyptians, who used the alkali in making cleansers. These ancient peoples produced Caustic, or lye, by utilizing the action of lime on solutions of plant ash sodas. Causticizing was effected cold, in the presence of a small amount of water, with the lye gradually separated by filtration through a cloth.

Is there more than one basic method of producing Caustic Soda today?

Yes. In the most popular electrolytic method, an electric current is passed through a sodium chloride brine solution contained in specially designed cells. Chlorine gas forms at the cell's anode, and a Caustic Soda solution collects at the cathode. This low concentration liquor is evaporated to yield the various commercial concentrations desired. The older lime-soda method of manufacture, not far removed in theory from the Egyptian process, utilizes the treatment of a soda ash solution with slaked lime. The resulting chemical reaction produces a weak Caustic Soda solution and a precipitate of Calcium Carbonate, which is filtered out. As in the electrolytic method, the Caustic solution is evaporated and purified to obtain commercial concentrations.

BIG SPLASH SAVES CUSTOMERS' DOLLARS. Advanced-design Columbia-Southern barges like the big beauty below carry Caustic along inland waterways, do a better job of protecting cargo purity, and unload more quickly and easily. Can you accept economical water delivery?



COLUMBIA - SOUTHERN CHEMICAL CORPORATION SUBSIDIARY OF PITTS BURGH PLATE GLASS COMPANY

SUBSIDIARY OF PITTSBURGH PLATE GLASS COMPANY ONE GATEWAY CENTER - PITTSBURGH 22 - PERHSTLYANIA



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METALS DO MORE ALL THE TIME . . . THANKS TO ALLOYS

For Mcre Information Circle No. 710 on Inquiry Card-Page 17



CASE HISTORIES



Switch in Dies Reduces Scrap from 25% to 11/2%

Norge Division of Borg-Warner has reduced scrap on crisper pans from 25% to 1½% after switching from iron casting dies to cast-to-shape tool steel ring dies of high-carbon, high chrome analysis. The new dies were made from Allegheny Ludlum Steel Corporation's cast-to-shape tool steel. Norge makes the crisper pan of 19 gauge deep draw enameling steel on a 350 ton hydraulic press.

CIRCLE NO. 67 ON INQUIRY CARD-PAGE 17



Costs Cut in Half by Switch to Fiberglas Compound

Repeated laboratory failure of plastic strike plates designed for refrigerator doors led the Kelvinator Division of American Motor Corporation to switch to a Fiberglas-reinforced molding compound. The new strike plate took 1,000,000 test slams— equal to thirty years of continuous usage—without visible fatigue. As a result, today's Kelvinator refrigerators and freezers contain 25 different Fiberglas-reinforced plastic parts in 46 structural locations, permitting economic saving of up to 50%.

CIRCLE NO. 68 ON INQUIRY CARD-PAGE 17



Special Steel Increases Life of Socket Head Screws

Rockwell Spring and Axle Company eliminated down time and increased the life of socket head screws by 1000% by switching to Potomac die steel bolts. Insert die sections were held in place by socket screws while a press hot formed truck axle housings. Continual operation at temperatures from 1200° to 1275°F. caused the socket head screws, made of standard SAE alloy, to break after four or five days normal operation. Screws of Potomac Steel have been in operation for eight weeks and are still good.

CIRCLE NO. 69 ON INQUIRY CARD-PAGE 17

Why **Dish-Quik** uses Chase Free-Cutting Brass Rod!



HAROLD E. CONNELLY, Purchasing Agent, Modern Faucet Mfg. Co.

Housewives want economy and long-lasting dependability from their appliances—and the makers of Dish-Quik know it! That's why this beautifully designed, labor-saving faucet attachment was fabricated from so much free-cutting Chase brass rod!

For one thing, using Chase free-cutting brass rod assures Modern Faucet Mfg. Co. of highest production speed and top-quality work. What's more, parts made from this tough, corrosion-resistant rod won't clog with rust from their daily contact with hot and cold water. They shrug off hard knocks that are part of frequent use.

The end result? A de-luxe product made to give more value to consumers — at the lowest cost to the manufacturer!

Bring your production problems to...



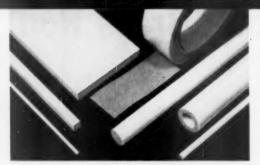
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For More Information Circle No. 711 on Inquiry Card-Page 17

WHICH OF THESE POLYPENCO" INDUSTRIAL PLASTICS CAN HELP YOU GET BETTER PERFORMANCE AT LOW COST?



STOCK SHAPES—for rapid low-cost fabrication

Teflon*: rod, tubular bar, spaghetti tubing, large diam, thin wall tubing,

Nylon: rod, strip, tubular Q-200.5 (cross-linked poly-bar, plate, tubing styrene): rod and plate

K-51 (chlorinated polyether): rod, strip, tubular bar

Distributed by The Polymer Corp. of Pa.



NYLAFLOW PRESSURE TUBING

A specially processed polyamide tubing, used extensively for lubrication, hydraulic, pneumatic, beverage lines in many industries. Available in burst pressures of 1000 psi and 2500 psi. Flexible, strong, corrosion resistant, easily installed.

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NYLATRON® nylon molding powders

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for architecture



MCLOUTH STEEL CORPORATION DETROIT, MICHIGAN



CASE HISTORIES



PVC Pipe Substituted In Steel Mill; 83% Saved

Unplasticized polyvinyl chloride pipe and fittings have been found highly successful for handling muriatic acid in an eastern steel mill at as little as one-sixth the cost of other corrosion resisting materials used for acid conveying lines in the same mill. The PVC pipe, supplied by the Alloy Tube Division of The Carpenter Steel Company has proved easier and cheaper to install than both steel and rubberlined pipe. Since it requires no welding or bolting, it gives a substantial savings in labor. In addition, there is a savings in the original cost of fittings.

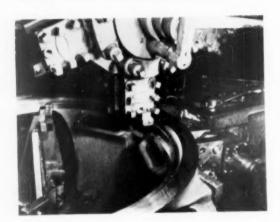
CIRCLE NO. 70 ON INQUIRY CARD-PAGE 17



Use Resins To Make Own Tools; Cut Costs 85%

Savings of up to 85% in the first cost of vise jaws mill fixtures, and drilling chucks have been made by Smith Welding Equipment Corporation since the company started making its own tools from Rezolin Toolplastik compounds based on Bakelite epoxy resins. By switching to epoxy, the company has not only cut tool costs but it has also been able to reduce production downtime and introduce tooling into areas where specialized equipment was prohibited by high cost.

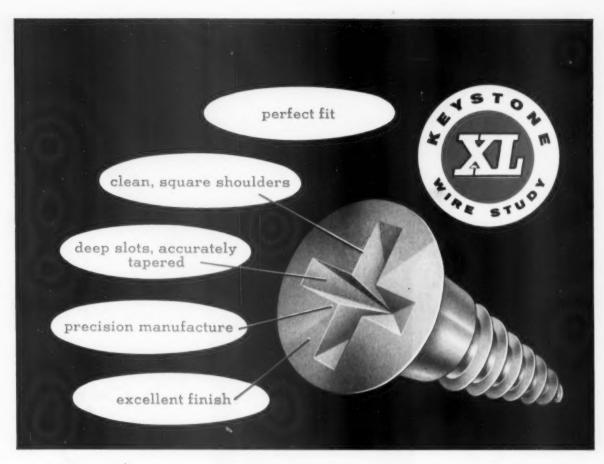
CIRCLE NO. 71 ON INQUIRY CARD-PAGE 17'



Insert Machines Eight Pieces per Grind Instead of One

A leading manufacturer recently secured a sizable ordnance contract. He was faced with the task of turning, facing and boring 38½" diameter pieces of cast armor. These armor parts have a Brinell hardness of 280 to 300 except in chilled spots that are still harder. With standard brazed carbide tools only one piece could be machined per grind on roughing. By changing to Kennametal Inc's KBR-24 tool with rectangular insert, with four cutting edges, eight pieces are machined before the insert is discarded. Other Kennametal inserts equally speed up boring and finishing.

CIRCLE NO. 72 ON INQUIRY CARD-PAGE 17





KEYSTONE "XL" flowability is the secret for Reed & Prince Mfg. Co., Worcester, Mass.

Reed & Prince Mfg. Company has been producing many complex cold headed parts since 1886. This progressive firm has found that Keystone "XL" Heading Wire successfully fulfills difficult cold upsetting requirements with substantial savings in time and costs, with longer die life and fewer rejects.

Result: They make longer runs of quality fasteners, like the specially designed Reed & Prince Recessed Head Screw shown above, at lowest possible costs. The flowability of the wire is a prime factor in the manufacture of this precision recessed head screw. Deep, accurately tapered slots with clean, square shoulders provide a perfect fit for the Reed & Prince driver. The surface finish of Keystone "XL" Wire assures excellent plating qualities.

KEYSTONE

WIRE FOR INDUSTRY

Take a tip from Reed & Prince: If you are having trouble heading complicated parts, talk it over with your Keystone representative. He will gladly help you analyze your wire needs. And if you are presently machining many complex parts, it may pay you to discuss your requirements with a manufacturer of cold headed products. We will gladly give you the names of Keystone "XL" Heading Wire users.

Keystone Steel & Wire Company, Peoria 7, Illinois



For More Information Circle No. 714 on Inquiry Card-Page 17

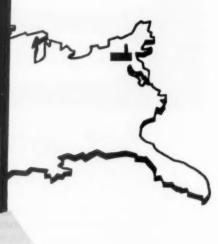
For Mine-to-Market

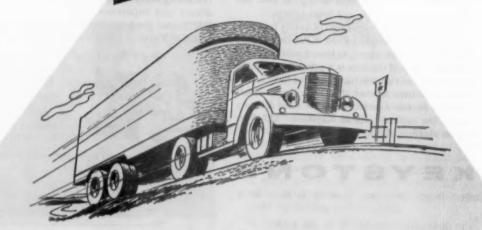
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Packaging that's easy to stock and use.

Dependable quality that starts with highest grade copper from Phelps Dodge's own open-pit mines and is carefully controlled during fabrication.

Color-coding of tube in straight lengths for quick identification in the stockroom and on the job.

Mill depots strategically located to service distributors without delays.

Tube properties that are unsurpassed, including precise uniformity of wall thickness.

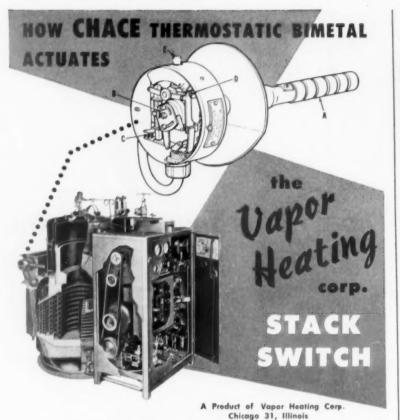
For the name of your nearest Phelps Dodge distributor, write Dept. B4, Phelps Dodge Copper Products Corporation, 300 Park Avenue, New York 22, N. Y.



PHELPS DODGE COPPER PRODUCTS

CORPORATION

SALES OFFICES: Atlanta, Birmingham, Ala., Boston, Buffalo, Charlotte, Chicago, Cincinnati, Cleveland, Dallas, Detroit, Fort Wayne, Greenstoro, N. C., Houston, Jacksonville, Kansas City, Mo., Las Angeles, Memphis, Milwaukse, Minneapolis, New Orleans, New York, Philadelphia, Pittsburgh, Portland, Ore., Richmond, Rochester, N. Y., San Francisco, St. Louis, Seattle, Washington, D. C.



Thousands of Vapor-Clarkson Steam Generators are installed in Diesel locomotives to automatically produce high pressure steam used to heat the nation's Diesel powered passenger trains. One of the important safety controls which Vapor Heating Corporation developed for the steam generator is a reliable Stack Switch actuated by Chace Thermostatic Bimetal. This control is located in the exhaust stack of the steam generator and has two important functions: (1) to turn the steam generator OFF if the forced draft fire does not light up within 45 seconds from the time the switch is turned ON; and (2) to turn the steam generator OFF if the exhaust temperature becomes excessively high.

Here's how it works: the thermostatic bimetal helix (A) rotates a shaft attached to the indicator and cam (B). As the temperature of the exhaust in the stack increases, the bimetal flexes, turning the shaft to close switch contacts (C) at approximately 250° F., thus proving the presence of flame for combustion safety control.

If the exhaust temperature rises to approximately 900° F., the switch contacts (D) open, shutting down the steam generator. After correction of the condition which caused the high stack temperature and resetting this switch by resetting the button (E), the steam generator may be restarted.

Remember Chace when you design for temperature actuation or indication, or for protection of valuable equipment. Dependable Chace Thermostatic Bimetal is available in 28 types, in strip, coil or completely fabricated and assembled elements made to your specification. Write for new 44-page booklet, "Successful Applications of Chace Thermostatic Bimetal," containing interesting uses of bimetal and many pages of engineering data.



For More Information Circle No. 716 on Inquiry Card-Page 17

Silicone Finishes Outlast Enamel on Refrigerators



Instead of using vitreous enamel or porcelain finish on their commercial refrigerators, Sherer-Gillet Co., Marshall, Mich., has, the past 2 years, been giving them two coats of Glidden's Nubelon-S. a formulation based on Dow Corning silicone resin. Shearer found that the silicone finish had excellent color retention and that cabinets stayed new-looking longer, despite abuse from wood and beverage stains, abrasive cleaning compounds and shopping cart impacts. The flexible silicone coating leaves no "black brushing" lines typical of porcelain finishing.

Circle No. 81 on Inquiry Card-Page 17

Low Expansion Alloy Cuts Cost of Parts in Half



The Penn Industrial Instrument Corporation gained in three ways when it changed materials for connecting links used in a temperature, pressure and rate-of-flow recorder. By switching to Carpenter Invar "36", a 36% nickel low expansion alloy, the company was able to dispense with plating, reduce link costs 50% and improve recording accuracy to a maximum deviation of 0.05% as compared with 1.5% formerly.

Circle No. 82 on Inquiry Card-Page 17



why there's NO BEAD-NO UNDERCUT

But Trent put a stop to that—simply by going into partnership with gravity. With their exclusive Contour-Welding process, they weld at the bottom—and gravity works for them. For then, the bulge is in the opposite direction—blending in perfectly with the contour of the pipe itself.





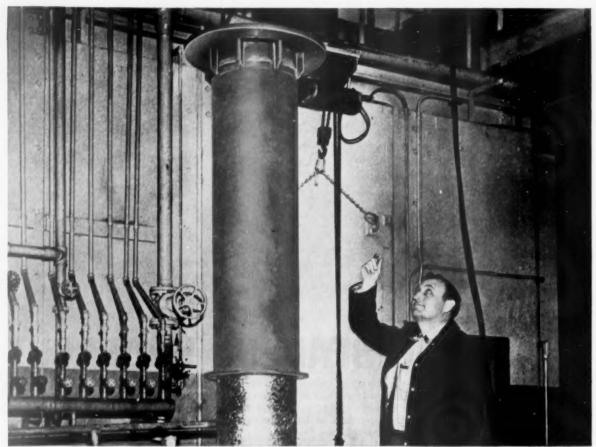
... with new CONTOUR TRENTWELD

New Contour-Trentweld stainless pipe and tubing is so smooth, both inside and out, that you can't even feel the weld. It's stronger, more uniform, with no place for corrosion or erosion to get a toe-hold. And it's available in any size or gage . . . in all stainless, high-alloy, Hastelloy and titanium grades that can be welded.



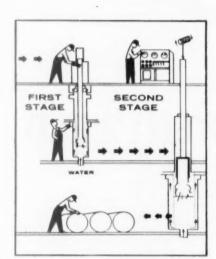
Stainless and High Alloy Welded Tubing See us at N.A.P.A. Inform A Show Atlantic City, May 26-29 Booths 1, 2, 3, 4,

TRENT TUBE COMPANY, GENERAL SALES OFFICES, EAST TROY, WISCONSIN (Subsidiary of Crucible Steel Company of America)



STRIPPING titanium ingot from crucible fabricated from Anaconda large-diameter seamless copper tube. During melting, the crucible is water cooled.

How Copper helps make superior Titanium Ingots



SPONGE TITANIUM pressed into electrodes is melted in the first-stage arc furnace, forming ingots. Several such ingots are welded together and used as an electrode in the second melting. Double melting gives homogeneous, uniform ingots. A vacuum in the crucible assures low hydrogen content.

Titanium and titanium-alloy ingots that are homogeneous and have low carbon and hydrogen content are difficult to produce. Mallory-Sharon Titanium Corp. of Niles, Ohio, however, originated the double-melting process, "Method S," for production, which does the job.

A major factor in the successful production of ingots of sound structure is the use of water-cooled copper crucibles. Mallory-Sharon found that copper met the requirements for a satisfactory crucible material, particularly because of its high thermal conductivity.

Mallory-Sharon fabricates some of its crucibles more easily and quickly, using large-diameter Anaconda seamless copper tube for the body of the crucible. Various sizes are used for the crucibles—for example 20" I.D. x ½" wall thickness; and 15½" I.D. x %" wall thickness. These big Anaconda tubes are now playing a key role in producing the ever-growing tonnage of the new structural metal so vital in the production of America's jet planes.

The American Brass Company produces the widest range of seamless tubes available to industry. At one end are tubes in copper and copper alloys up to 26" I.D. At the other are the capillary tubes as small as .032" O.D. and wall thickness of .005"—for instrument control, activating lines, and other precision purposes.

Whatever your tubing problem, see your American Brass Company representative. Or write: The American Brass Company, Waterbury 20, Conn.

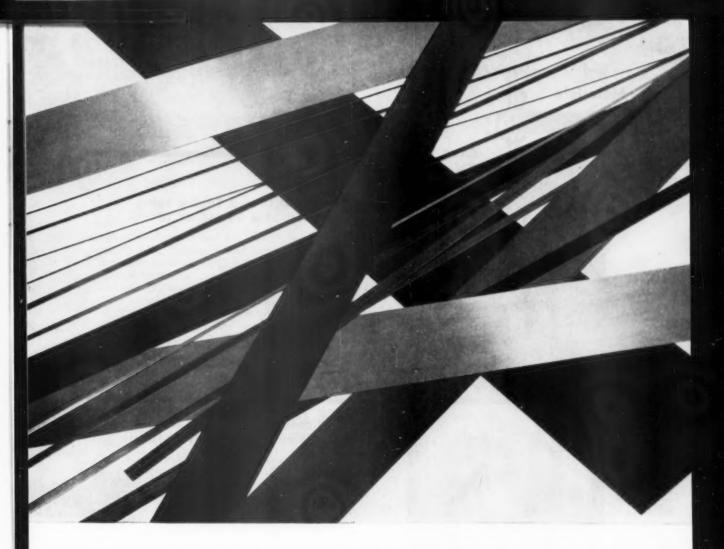
ANACONDA

TUBES AND SHELLS in Copper, Everdur, Cupro Nickel, Brass Made by The American Brass Company

For More Information Circle No. 718 on Inquiry Card—Page 17

For More Information Circle No. 719 on Inquiry Card—Page 17→

PURCHASING



How these "educated" steels make products behave better

● Nobody will deny that there can be a vast difference between steels that are supposedly alike. The difference lies in "tremendous trifles" that often make all the difference between smooth and erratic fabrication or between satisfactory and faulty product behavior.

That's why the steels shown above are "educated", you might say—educated for special use. Because here at the Athenia Steel Division of National-Standard we've concentrated for years on learning about and controlling

those tremendous trifles! In turn, this learning and experience is put right into the Athenia steels that successfully meet many of the toughest assignments known today.

If your production calls for cold rolled flat steels of .45 carbon or higher, from .015 $^{\prime\prime}$ to 16 $^{\prime\prime}$ wide and from .001 $^{\prime\prime}$ to .065 $^{\prime\prime}$ thick, it would be a good idea to explore Athenia quality, performance and service.

NATIONAL



STANDARD

DIVISIONS: MATIONAL-STANDARD, NIGO, MIGO, MIGO,



CASE HISTORIES



Cold Drawn Tubing Being Used at a Saving of 181/2%

Automatic pilots for hot water heaters are being made from fusion welded, cold drawn tubing at a saving of 18½% without reducing the effectiveness of tubes or impairing workability. Kilroy Controls, Inc. reports this economy after a third change in tubing for its pilot tips. The tubing now used is Weldrawn Type 430, a 17% chrome stainless steel, manufactured by Superior Tube Company.

CIRCLE NO. 73 ON INQUIRY CARD-PAGE 17



Silicone Coated Cans Cut Costs of Handling Packaged Asphalt

Customers of Leonard Refineries, Alma, Mich., had difficulties in removing asphalt from the 50-lb can in which it was packaged. Because it clung to the container, they had to heat it, even to remove it partially. To solve the problem, the refinery tried several products for coating the cans. The temperature—500 F—at which the asphalt fills the containers direct from the still proved an obstacle until Dow Corning's silicone coating 1107 was used to fogspray the cans. Leonard's customers now merely slash down the side of the can to strip away the asphalt.

CIRCLE NO. 74 ON INQUIRY CARD-PAGE 17



New Tool Steel Prevents Loss of \$1,300 Investment

An eastern metalworking plant lost a \$1,300 investment in a punch and die, then avoided a similar loss by making the second set from a different tool steel. The original punch and die—made from a high carbon, high chromium air-hardening die steel—cost \$1,000. They moved so much in heat treatment that the firm had to invest \$300 more trying to reclaim the set—then finally scrapped it. The toolmaker then made a punch and die from Carpenter No. 610, an air hardening tool steel with extreme hardening accuracy. No further difficulties were encountered.

CIRCLE NO. 75 ON INQUIRY CARD-PAGE 17

WHICH sodium silicate suits your process best?

Opalescent Solutions

	Wt. Ratio
Baumé	(Na ₂ O to SiO ₂)
38° Pearl	1:3.25
40° Regular	1:3.25
41° Acme	1:3.25
42.5° Ajax	1:3.25
47° Ideal	1:2.84
52°	1:2.40
60°	1:2.00
And other ranges of	Raumés





Clear Solutions

	Wt. Ratio
Baumé	(Na ₂ O to SiO ₂)
38° Crown	1:3.25
38° Gem	1:2.54
40° Peak	1:3.22
41° Water White	1:3.25
42° Silk	1:2.54
42.5° Water White .	1:3.25
44° Perox	1:1.80
52° Zenith	1:2.40
And other ranges of	Baumés



Glass: Block form

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For More Information Circle No. 720 on Inquiry Card-Page 17

For More Information Circle No. 721 on Inquiry Card-Page 17→

ake a neu







at how *Carpenter*can help you free dollars for more productive uses

As you know, every dollar tied up in inventory shortens productive cash by an equal amount. And inactive stocks of specialty steels are an unnecessary luxury.

That's why we ask-have you called Carpenter lately?

If not, you may be missing a good bet to shift inventory cash into more profitable channels. Here's why.

Your Carpenter Mill-Branch Warehouse is now in the best position ever to meet your day-to-day needs for tool, stainless and alloy steels . . . quickly and without hesitation.

What's more, this comprehensive Mill-Branch Ware-house program is backed by direct service from the Reading Mill to quickly meet unusual requests for special grades and sizes.

Add together the order desk people . . . your Carpenter Representative . . . the warehouse crew, and the office staff, and you have team action that spells increased dependability. Whether you want information on prices . . . technical literature to simplify heat treating . . . or actual in-shop assistance — there's a specialist at Carpenter ready to help you.

Start today! Let your nearby Carpenter Mill-Branch Warehouse be your own stock room . . . help you free your inventory dollars for more productive uses. A phone call is all that's needed to get you underway. The Carpenter Steel Co., 182 W. Bern St., Reading, Pa.

Carpenter

Mill-Branch Warehouse Service



Mill-Branch Warehouses, Offices and Distributors in Principal U. S. Cities



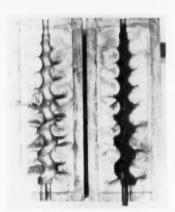
CASE HISTORIES



Stainless Tubing Solves Corrosion Problem

In its gas-fired year-round air conditioner, Servel, Inc., of Evansville, Ind., formerly used fire tubes made of copper and carbon steel in the generator. The tubes transfer heat from the flue gas inside to boil a solution of lithium bromide and water outside the tubes. Traces of sulfur in the flue gas and the lithium bromide solution both had a strong corrosive action on the carbon steel and copper tubes. When Carpenter Steel's Type 304 stainless steel tubing was substituted, all tube corrosion trouble disappeared.

CIRCLE NO. 76 ON INQUIRY CARD-PAGE 17



Epoxy Resin Feed Screws Reduce Jar Breakage 69%

Pfaudler Co. of Rochester, N. Y., manufactures automatic bottle filling machines. High-feed metal screw caused a certain amount of breakage when glass jars were filled. Pfaudler substituted for the metal a casting compound based on Bakelite epoxy resins and hardeners for making the feed screw in an automatic machine which fills small glass jars for a leading baby food supplier. The epoxy resin unit has transported about 35,000,000 jars with 69% less breakage than the original metal part.

CIRCLE NO. 77 ON INQUIRY CARD-PAGE 17



Hollow Aluminum Bar Stock Offers Material Saving

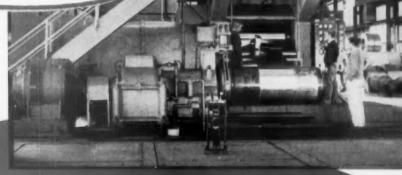
A customer of Harvey Aluminum ordered an aluminum part to be produced requiring a 3" diameter machining bar with 2.625 hole. A material cost study comparing conventional solid stock with hollow bar developed by Harvey indicated that the hollow bar stock offered a material savings of 29.7%. In addition, further savings were gained because drilling operations were not required with the hollow stock, and the cost of handling and processing the chips was eliminated.

CIRCLE NO. 78 ON INQUIRY CARD-PAGE 17



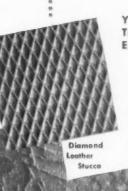
This modern rolling mill is always at your service to give you exactly what you want in Aluminum -delivered exactly when you want it.





UAKER STATE gears their Aluminum mill

your Requiremen



Your Choice of Three Eye-Appealing **Embossed Finishes**

> STUCCO LEATHER and DIAMOND

If you need a special embossing ... we'll make it for you.

WHETHER you order a skid or a carload; whether you need it tomorrow, next week, or next month, QSM'S Modern Rolling Mill is geared to produce and deliver the Aluminum Product you need, the way you want it, when you want it. Quaker State's trained personnel are capable and happy to relieve you of your worries when you need a particular Aluminum Product in a hurry.

Quaker State's Modern Rolling Mill is at your service for supplying Aluminum in sheets and coils, in mill or various embossed finishes. Gauges run from .008 to .067 inches thick, 1100, 3003, 3004, 5005, 5050, 5052 and Utility Sheet Aluminum Alloy, all tempers, ranging in width from 1/2" to 36".

A Call to Your Local QSM Office Results in Immediate Action!

NEW YORK, N.Y. 250 W. 57th St. Circle 6-0244

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7818 Forsyth Blvd. Clayton PArkview 5-2393

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ST. LOUIS, MISSOURI DETROIT, MICHIGAN 544 Buhl Building WOodward 2-6414

> MIAMI. FLORIDA 307 Dade Commonwealth Bida 139 N.E. First St. FRanklin 3-6008

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CHICAGO, ILLINOIS 30 West Washington St. DEarborn 2-2524

STATE METALS COMPANY

Lancaster, Pa. • Phone: Lancaster EXpress 4-5611

For More Information Circle No. 722 on Inquiry Card-Page 17



INVENTORY ERROR threatens to halt production at the plant of a large manufacturer in Wisconsin. Unless supplies of two critically needed chemicals are delivered by early evening the second shift will have to be sent home. A long distance call is put through to Merchants' Milwaukee office.



MERCHANTS' WAREHOUSE has been closed for half an hour when the call comes in, but two of the Merchants sales staff volunteer to stay late to help meet the emergency. They load sixty bags and two drums of chemicals onto trucks and flats, ready for pick-up.



AT 8:00 P.M. MANUFACTURER'S TRUCK ARRIVES, is loaded quickly, takes off for a fast return trip. Dinner was late that night for the two Merchants men, but they had been able to help a customer out of a tight spot. That kind of customer service is a tradition at Merchants Chemical.

THEY WERE READY TO SEND THE SECOND SHIFT HOME, UNTIL... Merchants' Service solved critical supply problem

A distributor, chemical or otherwise, sells service. At Merchants Chemical, service may take the form of emergency accommodation, as in the example cited above; or it may mean experienced technical advice, or special repackaging to help meet a particular production problem. Whatever your need, you'll find that

each Merchants office is ready to give your order the special attention it deserves. Merchants serves you from sales offices and stock points across the country. Products offered include acids, alkalis, fungicides, surfactants, chlorinated solvents, emulsifiers, laundry compounds, soaps, dry ice and chemical specialties.



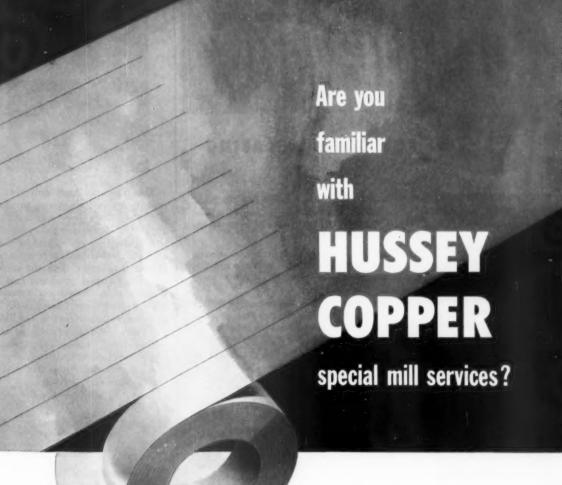
MERCHANTS CHEMICAL COMPANY, INC.

60 East 42nd Street, New York 17, N. Y.

SALES OFFICES AND WAREHOUSES: Chicago • Cincinnati • Columbus • Denver • Louisville • Milwaukee • Minneapolis • New York • Omaha

STOCK POINTS: Albuquerque, N. M. • Erwin, Tenn. • S. Norwalk, Conn.

For More Information Circle No. 723 on Inquiry Card-Page 17



CIRCLE CUTTING

SHEARING

ANNEALING

POLISHING

SAWING

Your mill orders for Hussey Copper or Brass may specify any of a number of special extras including any type of shearing, sawing or slitting, circle cutting, various degrees of annealing, polishing or certain types of fabrication. Take advantage of Hussey Special Mill Services to reduce operations in your own production.

C. G. HUSSEY & COMPANY

(Division of Copper Range Co.)
Relling Mills and General Offices: Pittsburgh 19, Pa.

7 Convenient Warehouses to serve you

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PHILADELPHIA (30)
NEW YORK LONG ISLAND CITY (A) 34.30 Thirty first G

HUSSEY

NEW UDYLITE bright zinc ZB-57 FOR BARREL PLATING

ECONOMY OF OPERATION

Operational economy is a major feature of ZB-57 Bright Zinc. The zinc brightener is long-lasting, and has excellent stability, even at elevated temperatures.

EXCEPTIONAL PLATING SPEED

New Bright Zinc ZB-57 lets you increase production up to 75% per barrel and per man-hour. Gives beautiful bright zinc coatings, even at higher voltages.

AN UNUSUALLY WIDE BRIGHT PLATE RANGE

Even in plating parts of complicated shapes with deep recesses, this new Udylite Bright Zinc provides excellent color, and minimum variation in luster.

CAN BE TAILORED TO THE JOB

With ZB-57, the basic solution formulation can be varied to meet special plating needs such as deep throw of the plate, or highest demands for speed.

BEAUTIFUL COLOR

The blue-white finish of ZB-57 sparkles with sales appeal! It is unusually bright, and exceeds by far the standard for a decorative bright zinc.

BRIGHT DIPPING

Since deposits have exceptional brightness, bright dipping is often eliminated, ZB-57 Bright Zinc ensures high quality finishes with minimum processing.

RECEPTIVE TO CHROMATE TREATMENTS

Where desired, the zinc deposit is extremely receptive to clear or colored chromate treatments, and other post treatments.

EXCELLENT PROTECTION AGAINST CORROSION

The protection against corrosion afforded by a zinc coating is proportional to its thickness. This process is no exception. Users will receive more protection per dollar than ever before,

POWDER OR LIQUID
BRIGHTENER AVAILABLE

ZBP-57 is a dry powder for maximum economy in long distance shipping. For those who prefer the simplicity of liquid additions, ZBL-57 is available.

Consult your Udylite representative, or write us directly about your needs for bright zinc plating. A test run of this new Udylite process will convince you.



WORLD'S LARGEST PLATING SUPPLIER

For More Information Circle No. 725 on Inquiry Card-Page 17

Cut Cost of Prototypes in Half





The normally high unit cast of prototypes and short-run production items has been cut at least 50% by a technique that employs Bakelite epoxy resins and hardeners in a dual role. The compounds are used to make both the molds and the finished products cast in these molds. Based on epoxies, they have been developed by Houghton Laboratories, Inc. For the molds Houghton used an aluminum-filled epoxy compound; for the finished brush blocks, a black-pigmented compound based on Bakelite epoxy resins.

Circle No. 83 on Inquiry Card-Page 17

Material Used for Bench Covering Reduces Damage

Boeing Aircraft purchased Neotex from Research Products Company for use as a bench covering material. After a period of evaluation, three sections of two departments ordered the material as a stock item for bench covering. The departments handle highly polished parts, delicate instruments, etc, that were prone to scratch. The material was so successful that its use is being constantly expanded. It was shown that no other type covering afforded the protection to the under side of a part being drilled as Neotex. All shavings from the drilling operation fall into the open mesh and leave the work surface smooth and free of chips. Circle No. 84 on Inquiry Card-Page 17

For More Information Circle No. 726 on Inquiry Card—Page 17→

PURCHASING

Aluminum is <u>many</u> metals ... be sure you get the right one

You can prevent many costly production mistakes by buying the *right* aluminum for your specific job. First of all, is it the right alloy? Is it the correct temper? Could a different job setup save you time, material or labor?

You can be sure your answers are the right ones by dealing with a Reynolds Aluminum Distributor. His salesmen have been Reynoldstrained in the properties of aluminum, its alloys, its uses in production and construction. He can help you avoid costly mistakes with aluminum, help you use it more profitably.

Be sure you're using the right aluminum—in the right way for your job. Call your Reynolds Distributor.

Reynolds Metals Co. Louisville 1, Kentucky

The Finest Products Made with Aluminum

are made with
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For fast delivery...on the exact amount of aluminum you want ... when you want it ... call your

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Hellywood, Onterie, Secramento, Sen Diege and
Sen Francisco
Metals Supply, Emeryville
Perry Klisby, Inc., (Tubling & Pip e) *Los Angeles
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Turner Metal Supply Co., (Wire, Rod, Ber)

*Huntington Park

COLORADO M. L. Fess, Inc., *Denver

CONNECTICUT American Steel & Aluminum Corp., "Martford Peter A. Frasse & Co., Hartford Jeseph T. Ryerson & Son, Inc., Wallingford Scavill Mfg. Co., (Wire, Rod, Ber) "Waterbury

ern States Iron Roofing Co., Jacksonville, Miami

Southern States Iron Roofing Co., *Attenta and Sevenneh

ILLINOIS

St.LINOIS
Aluminum Distributors, Inc., "Chicage
J. G. Braun Co., (Architectural anly) "Chicago
Joseph T. Ryerton & Son, Inc., "Chicago
Scovill Mg. Co., (Wire, Red, Ber) Chicage
Benjamin Wolff & Co., "Chicage

TRUIANA
W. J. Heiliday & Ce., *Indianapolis
Kasie Steel Corporation, Elikhari
United States Aluminum Co., (Architectural only)
*South Bend

KANSAS Industrial Matals, Inc., Wichita

KENTUCKY
Cobb Sales Co., (Wire, Rod, Bar) *Louisville
Sauthern States Iron Roofing Co., Louisville

MARYLAND Clandanin Bros., Inc., *Baltimore

MASSACHUSETTS
The Congdon and Corponter Co., Fall River, Mass.
Richards Corporation, Maiden
Jos. T. Ryerson & Son., Inc., Baston

MICHIGAN

Kasie Steel Corporation, *Detroit and Grand Rapids McDannell Bres., Inc., (Architectural only) *Detroit Meler Bress & Aluminum Co., *Detroit Mt. Morris Bidg. Products, Inc., Mt. Morris

MINNESOTA

MacArthur Co., (Architectural only), °St. Paul Vincent Brass & Aluminum Co., °Minneapolis

Industrial Metals, Inc., *Kanses City and St. Louis

United Brass & Aluminum Co., Inc., Omeh

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NEW YORK
J. G. Broun Co., (Architectural only) New York
Edgcomb Steel and Aluminum Carp., Hillside, N. J.
Poter A. Frassa & Co., Buffele, *New York, Rochesi
Syracuse
Mapos & Sprowd Steel Co., Union, N. J.
Ontorio Motel Supply, Inc., (Wire, Rod, Bur)
*Rochesia
Joseph T. Ryerson & Son, Inc., Jersey City, N. J.

NORTH CAROLINA Southern States Iron Roofing Co., Raleigh

Hamilton Steel Warehouse, Claveland
Kasle Steel Corporation, Claveland
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Verys Brothers, Inc., *Columbus

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*Bothleham
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RHODE ISLAND The Congdon & Curpenter Co., *Providence

SOUTH CAROLINA

rn States Iron Roofing Co., Columbia

TENNESSEE

outhern States Iron Roofing Co., Memphis and Nashville

Allied Metals Inc., "Houston Vinson Steel and Aluminum Co., "Dalles and Houst

Salt Lake Hardware Co., *Salt Lake City

VIRGINIA Southern States Iron Roofing Co., Richm

WASHINGTON

Clingan & Fartier, Inc., Seattle and Spokane

Joseph T. Ryerson & Sons, Inc., Milwaukse Wisconsin Bridge & Iron Co., (Architectural only) *Milwaukse Bonjamin Walff & Co., Milwaukse

TERRITORY HAWAII
American Factors, Ltd., *Hanelulu

See "CIRCUS BOY", Reynolds dramatic series, Sundays, NBC-TV

Your Reynolds Aluminum Distributor is your ady source of sheet, plate, rod, bor, architecturals and structurals . . , technical information. See "Aluminum" in your classified telephone book.

more proof of furpenter quality . . . at no extra cost Reverse bend is made on one end, doubling the pipe back on itself. Machining is then performed on the doubled back part of the pipe as shown in photo.

Carpenter Stainless Pipe shows fabrication savings!

Only the highest quality stainless pipe and tubing with outstanding uniformity in properties and dimensions can take this punishing reverse bend (see sketches) and succeeding machining operations. The part is made from 2" Carpenter Schedule 40 pipe, and must meet close tolerance requirements consistently.

If more of this kind of proof is needed, call your nearest Carpenter Distributor today. He has the service and stock to serve you right!



You'll get fewer squawks from the shop if you buy quality-controlled products



Purchasing agents like to buy from Federated for two reasons:

- (1) They get exactly what they order. Non-ferrous ingots are alloyed precisely to specification. And the Federated metals and supplies you specify are identical this year... and next. The shop gets what it specifies.
- (2) Prompt shipments of quality-controlled materials reduce rejects and returns. Purchasing Department paperwork is reduced. There's more time to study changing products and procedures ... make money-saving recommendations to management.

All Federated non-ferrous metals . . . brass, bronze, aluminum, zinc, lead . . . and all Federated non-ferrous supplies . . . solder, babbitts, plating materials, galvanic anodes, lead products, etc., are competitively tested for superiority before they are sold. Federated products are alloyed or produced under rigid quality control, supervised by ASARCO's Central Research Laboratory.

The next time your Federated salesman stops in, ask him about Federated quality control practices. It will interest you to know how carefully we guard your interests.



AMERICAN SMELTING AND REFINING COMPANY

120 Broadway . New York 5, N.Y.

For More Information Circle No. 728 on Inquiry Card-Page 17

Carbon Corrected Steel Pins Transmit 17 Tons of Power



Pins that fasten sections of heavy track on Oliver's giant "OC-18" crawler tractor must stand up under severe working abuse as well as the force of the machine's 17-ton driving power. The builder achieves maximum service life for track pins by using Republic Steel's carbon corrected cold drawn steel bars. Service of track pins on working tractors has proven that the bars are resistant to fatigue failure, thereby reducing replacements and cutting down-time on the heavy equipment.

Circle No. 85 on Inquiry Card-Page 17

Epoxy Resins Permit Permanent Metal-Wood Bond

Rerecich Co. makes a contour scraper employing 26 flexible metal prongs instead of a blade. The prongs are set into wood. Available imbedment materials glue, cement and latex-were unsatisfactory because of a tendency to crack, insufficient strength and hardness, and uneconomical handling requirements. Marblette Corp. supplied a liquid epoxy resin that met all production and performance tests of the manufacturer. A mixture of resin and hardener sets quickly and grips the prongs firmly at the bottom end without restraining free movement at the curved top.

Circle No. 86 on Inquiry Card-Page 17

TAYLOR Laminated Plastics

Vulcanized Fibre

Shop Talk

TAYLOR FIBRE CO.

Plants in Norristawn, Pa. and La Verne, Calif.

PHENOLIC-MELAMINE-SILICONE-EPOXY LAMINATES . COMBINATION LAMINATES . COPPER-CLAD LAMINATES . VULCANIZED FIBRE

Tips for purchasing men



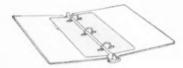
Back plate on an automobile headlight switch, punched and machined from Taylor Grade XP paper base laminate, has low moisture absorption and good dielectric strength.



Vise jaw caps, made of Taylor Grade C phenolic laminate, are easily cut and machined to shape. Marring of precision or delicate parts is eliminated.



Self-balancing servo motor has stator case insulator which is cold-punched from 1/4" thick Taylor Paper Base Phenolic Laminate sheet.



Flippers for loose-leaf binders are made of omical Taylor Vulcanized Fibre . . . affording added rigidity and good protection for the paper

TAYLOR SUPERIOR COPPER-CLAD LAMINATES

Taylor GEC (glass epoxy) Copper-Clad and Taylor XXXP-242 cold punching (paperphenolic) Copper-Clad. Taylor uses high purity rolled copper on base materials with outstanding electrical properties.



Time switch, made by the Tork Clock Co., uses two Taylor products . . . the deadfront is made of vulcanized fibre for its insulating properties, shock protection and printability . . . the mounting panel of the clock is made of Taylor laminate XP-1-231, chosen for high strength and good punchability.

Have an Insulation Problem?

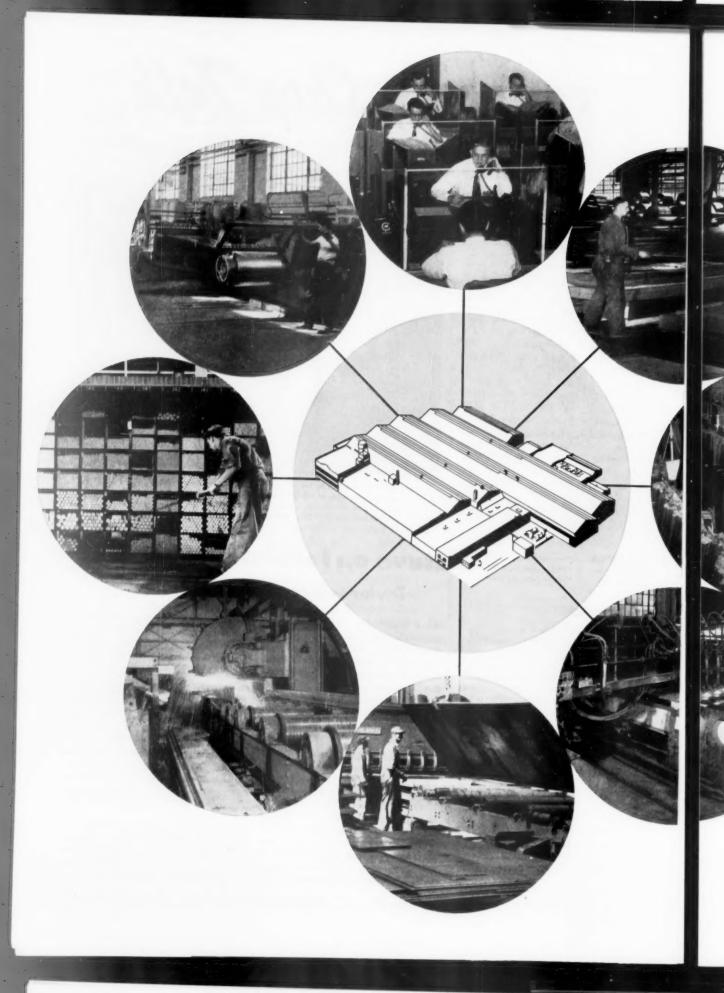
Taylor will provide the answer . . .

Select from Taylor's complete line of materials-laminates and vulcanized fibre-to get the right combination of electrical, physical and machining properties for your product. And, if you have a unique problem, Taylor will develop a special material to meet your requirements.

For example, rigid requirements for insulation materials in the Tork Clock Company's Time Switch were met by two Taylor materials-a laminate and vulcanized fibre. The mounting panel is made of Taylor laminate XP-1-231, especially formulated for the high strength and good punchability requirements of this application. In addition, Taylor vulcanized fibre serves as the deadfront—a shockproof cover removed only for installation and service. Fibre was chosen for its insulating properties, shock protection, and printability.

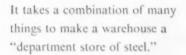
Taylor materials are developed to meet the need for dependable, moisture-resistant insulation. They have high dielectric and mechanical strength, and maintain original characteristics over long periods of time, under severe operating conditions. When you choose-and use -Taylor products, you'll have performance with stability.

Taylor application engineers can help you obtain the Taylor material that matches the exact requirements of your product. Contact your nearest Taylor sales office.



"The Department Store of Steel"

Call Your J& L Warehouse for Fast Steel Service



First of all, it takes steel—in a wide range of sizes, shapes and analyses.

Next it takes processing facilities and equipment—modern and complete.

Then add people—trained, experienced and service minded people. Finally, back them up with really prompt delivery service.

Give us a call on your next steel order and you'll see why your J & L Steel Warehouse is your "Department Store of Steel."

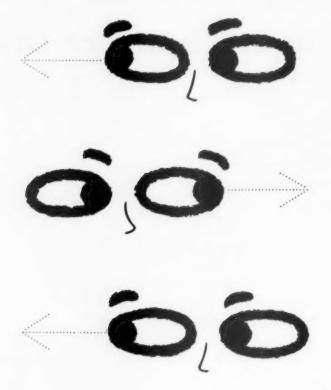
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Alternating stresses bear watching!

Back and forth . . . up and down . . . in and out . . . if those stresses keep changing, the life of a metal part is a hard one . . . and often a short one. Stress reversals can cause "fatigue" failure at stresses far below the expected strength of the metal. One of the outstanding properties of phosphor bronze is its high resistance to fatigue failure. It is widely used for electrical switch parts, relay contact springs, bellows, rotating shafts and other moving or vibrating parts. For detailed information on phosphor bronze, write to

> Riverside-Alloy Metal Division, H. K. Porter Company, Inc., Riverside, N. J.



ALLOY METAL WIRE Prospect Park, Pa.

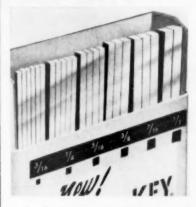
RIVERSIDE METAL Riverside, N.J.

PRENTISS WIRE MILLS Holyoke, Mass.

RIVERSIDE-ALLOY METAL DIVISION H. K. PORTER COMPANY, INC.

For More Information Circle No. 731 on Inquiry Card-Page 17

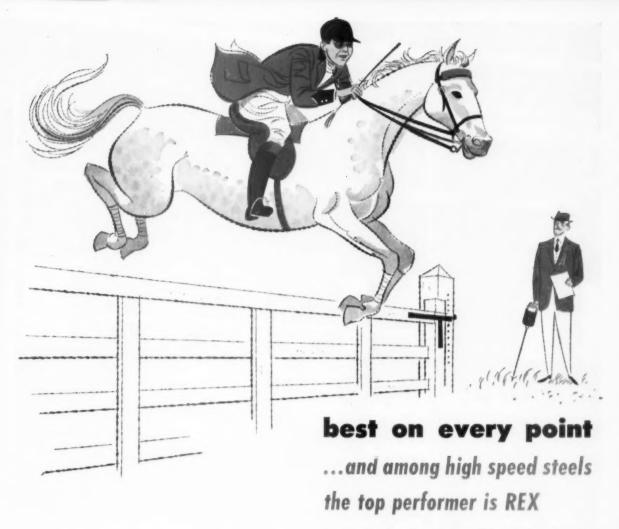
Twelve Inch Key Stock Saves Handling and Assembly Time



leading manufacturer of overhead cranes formerly cut machine keys from 12-foot lengths of commercially drawn bars which usually ran .000" to -.004" undersize. Because of its length, the key stock was stored in steel racks which were some distance from the assembly operation. The company now uses 12 - inch lengths of Mak-A-Key, a key stock made of high quality open hearth steel, cold-drawn to oversize tolerance, which consistently "mike" .000" to +.003" oversize. The new key stock eliminates the need for custom fitting; packaged in 12-inch lengths, it can be stored close to the assembly operation. Circle No. 87 on Inquiry Card-Page 17

Tool Steel Solves Problem in Machining Titanium

On the recommendation of Firth Sterling engineers, a manufacturer of jet engine parts used Firthite HA on the difficult operation of machining titanium. The customer was able to completely face, turn, bore, groove and cut off the part. HA helped end the difficulties normally encountered in machining titanium, so that 22 pieces were produced before a regrind was necessary. Previously, the manufacturer had been unable to produce this work in a satisfactory length of time with any grade of carbide. Circle No. 88 on Inquiry Card-Page 17



See us at N.A.P.A. Inform-A-Show Atlantic City, May 26-29 Booths 1, 2, 3, 4 To leap the hurdle of competition, a product needs performance born of quality. And Crucible's REX® high speed steel has it — in accurate size . . . sound uniform structure . . . dependable response to heat treatment . . . optimum tool performance.

Now, thanks to improved manufacturing techniques, REX is even better — more uniform. Put it to work on your next job, and you'll quickly know why REX is today, as it has always been — the standard by which all other high speed steels are compared.

Call for REX at your local Crucible warehouse. Or order it directly for prompt mill delivery. And for a list of available data on REX and other Crucible special steels, write now for a free copy of the "Crucible Publication Catalog". Crucible Steel Company of America, The Oliver Building, Mellon Square, Pittsburgh 22, Pa.



first name in special purpose steels

Crucible Steel Company of America

Canadian Distributor - Railway & Power Engineering Corp., Ltd.

For More Information Circle No. 732 on Inquiry Card-Page 17



CHICAGO CARDINALS FAIL TO FLAKE TI-CO°



Hard to believe. But not a chip, not a flake in TI-CO's coating—even at edges of deepest dents.

First-string linesmen Stonesifer, Dahms, Dittrich, Simmons, Hogland, Jennings and Nagler—nearly a ton of hard-hitting pro footballers—gave it everything they had, and still couldn't flake TI-CO.

Dent it? Sure. They dented quite a few opponents during the past season, too. But not a crack, chip, or trace of peeling or flaking could be found on this sheet of TI-CO, even after shoe cleats, backed with all that muscle, pounded it unmercifully.

Most TI-CO users don't wear cleats, but even the toughest, roughest handling or fabrication won't flake TI-CO's protective zinc coating. And that means absolutely dependable corrosion resistance.

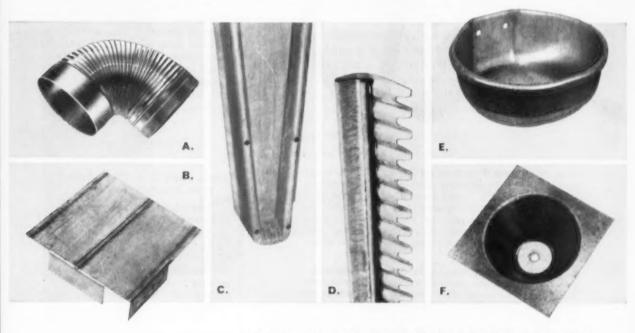
No forming operations too tough for Inland TI-CO galvanized sheets

If your products require deepdrawing, roll-forming, Pittsburgh lock-seaming, spin-drawing, crimping, perforating, or any other difficult fabricating process, you can make them with TI-CO and have the added advantage of over-all corrosion resistance. If you're presently using conventional pot galvanized, you can save money by switching to TI-CO. That's because TI-CO galvanized sheets, made by the patented Sendzimir process, take the most severe forming in stride, without flaking or peeling of the zinc coating. Rust doesn't have a chance to get a foothold. Unlike products made from conventional pot galvanized steel sheets, those made with TI-CO do not require re-dipping or "touchups" after fabricating, and rejects are greatly reduced. And TI-CO costs no more.

Non-flaking Inland TI-CO galvanized sheets are making possible many new products and helping to reduce production costs on old ones. It will pay you to investigate the possibilities for TI-CO in your operation.

TI-CO GALVANIZED SHEETS ARE NOW READILY AVAILABLE!

The terrific demand for this high quality sheet has kept TI-CO in short supply since its development. Now, additional production facilities have been completed making greater quantities available.



A. Crimping on duetwork elbow. B. Pittsburgh lock-seams hammered tight.

C. Roll-forming and crimping, D. Stamping and brake forming. E. Deep drawing and punching. F. Spin drawing.

No matter how severe the operation, TI-CO galvanized sheets take it . . . and the zinc coating stays put!

TI-CO is available in cut sheets or coils, in gages 8 to 30 inclusive and widths as great as 60 inches, TI-CO comes with dry, oiled or chemically treated surfaces. Consult your local steel distributor or your Inland representative for your requirements.

INLAND STEEL COMPANY

38 South Dearborn Street • Chicago 3, Illinois Sales Offices: Chicago • Milwaukee • St. Paul • Davenport St. Louis • Kansas City • Indianapolis • Detroit • New York



Look for this brand your assurance of non-flaking performance



This rotary switch component for an electric range proved to be a delayed-action saboteur. The beryllium copper from which it was formed was so hard that over a period of time it scratched and gouged the phenolic cams actuating the switch—to the point where the switch would soon become inoperative, causing customer complaints and damaging the manufacturer's reputation.

A specially-produced phosphor bronze alloy from Miller provided a quick and painless solution. Miller experts were able to recommend and produce a metal that retained the high degree of spring tension necessary for dependable operation—yet soft enough to protect the cams from damage. And, as an extra benefit, the manufacturer also found that it formed more easily—with far fewer rejects.

Miller specializes in the expert production of quality phosphor bronze—in strip, coiled and flat lengths—tailored to your specific needs. Remember: at Miller, Phosphor Bronze is the main line—not a sideline.



For More Information Circle No. 734 on Inquiry Card-Page 17

Glass-Bonded Mica First To Pass Navy Shock Tests



A Shock ring rheostat made by Ward Leonard Electric Co. was subjected to shock tests specified by the U.S. Navy for shipboard components. The reinforced Mycalex precision molded glassbonded mica used in the base ring and clamping member is the first ceramic type insulating material to successfully fill all requirements of the shock test. Selection of the mica made by Mycalex Corp. of America, for use in the rheostat was based on the high temperature resistance, dimensional stability, and the thermal expansion coefficient of the material, which matches that of steel. Circle No. 89 on Inquiry Card-Page 17

Costs Down 66-2/3% In Switch From Stainless to Acrylic

Controlled Atmosphere Enclosures Corp. cut the cost of its hermetically sealed apparatus by two-thirds when it substituted cast acrylic sheet and tube for stainless steel. The firm also reports that it reduced the possibility of harmful leaks by eliminating the soldered seams of the conventional stainless apparatus, and secured a more positive seal. The tube and sheet were supplied by Cadillac Plastic & Chemical Co.

Circle No. 90 on Inquiry Card-Page 17

QUICK—CONVENIENT
Use the Inquiry Card on
Page 17 for additional
information on any product

CYLINDER TUBING

... "mirror-finished" by Standard

Standard "mirror-finished" cylinder tubing is fullfinished to use without further sizing or finishing for such applications as automobile shock absorbers, power steering and hydraulic pumps. When it comes to punishment, it can really take it. Every inch of this rugged tubing measures up to exacting specifications in cylinder finish . . . in ID tolerances as close as .001" ... in extreme uniformity of wall thickness and concentricity . . . in internal pressure resistance, tested to shocks up to 9000 p.s.i. Cylinder sizes to 3" OD x .165" wall. For full information on Standard's complete range of products, plant facilities and engineering assistance send for free folder below.

- Welded Stainless Tubing and Pipe.
 Boiler and Heat Exchanger.
- Welded Carbon Steel mechanical.
- Exclusive rigidized pattern.
- Special Shapes



Shock absorber with metal-to-metal plunger in cylinder tube held to .001" ID tolerance. "Mirror-finish", concentricity and precision tolerance makes Standard cylinder-grade tubing usable as is for hydraulic and other cylinders.





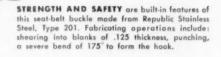
Free 8-page folder on all Standard products. Write to address below.

24400 PLYMOUTH ROAD DETROIT 39, MICHIGAN

Welded stainless tubing and pipe • Welded carbon steel mechanical • Boiler and Heat Exchanger • Exclusive rigidized patterns • Special Shapes • Steel Tubing—Sizes: ½" OD to 5½" OD —,026 to .260 wall • Stainless—Sizes: ½" OD to 4" OD —,020 to .154 wall.

For More Information Circle No. 735 on Inquiry Card-Page 17







SAFETY ASSURED by designing the high strength advantage of stainless steel into the simple beaktype buckle. No intricate springs or mechanisms to fail at the wrong moment. Both belt and buckle are rated 1000 pounds in excess of CAA specifications.

REPUBLIC



World's Widest Range of Standard Steels

with STAINLESS STEEL

SEAT-BELT MANUFACTURER LICKS CRITICAL PROBLEM WITH REPUBLIC ENDURO, TYPE 201

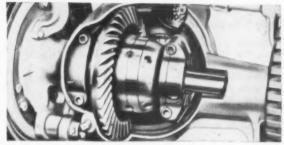
Here are the facts on a new and cost-cutting use of Republic ENDURO* Stainless Steel, Type 201, by Bunke-Musser Company, Jackson Center, Ohio, manufacturers of safety seat-belts for the automotive industry.

The most critical part of the entire assembly is the buckle. It must conform to Associated Seat Belt Manufacturers' specifications. These require that the buckles be subjected to a test pull of 1500 lbs., then reduced to 125 lbs. At this point, the pelican hook of the buckle must be capable of release at 45 lbs. pressure.

Prior to adoption of Type 201, another grade of stainless had been used. However, the slightly softer surface of this type resulted in a galling action at the fulcrum of the buckle when the release pressure was applied. Bunke-Musser also experimented with carbon steel. But this required use of heavier gage, chrome plating and polishing, with the end result being much more expensive than stainless steel.

Now the company has standardized on Republic, Type 201, with excellent results. The buckles meet and exceed test specifications. The galling action has been eliminated. Tensile strength increased 200 lbs.

Types 201 and 202 are relatively new members of Republic's family of stainless steels. Republic Specialists will be happy to work with you in designing these new grades into your product. The 200 Series offers high strength, corrosion-resistance and easy forming on your present equipment. And they are readily available. Mail the coupon for more information, or if you would like a Republic Specialist to call at your plant. There's no obligation.



THERE'S NO SACRIFICE OF STRENGTH OR SAFETY in this drive axle designed from Republic Alloy Steel. In these fine steels you will find the highest strength values—plus an exceptionally high strength-to-weight ratio that permits transmission of hundreds of horsepower through tough, strong axles, shafts and gears, free from excess weight. Republic Alloy Steels are essential in designing smaller sections to carry heavier loads safely—essential in extending equipment life and reducing maintenance and replacement costs. Send coupon for data.



A BUILT-IN SAFETY FACTOR is one reason why Republic Nylok Nuts are being used in thousands of critical applications to resist shock, vibration and cyclic loading. The answer is in the nylon plug in one face of the nut which forces threads on other side tight against bolt or stud. Above, Nylok Nuts provide a powerful clamp action and keep vital steering tie-rod assembly securely in adjustment, Nylok Nuts can be removed for maintenance of parts, then re-used with no loss in holding power. And because either end is up they are ideal for automatic feeding and power wrenching. Send coupon for more facts.

STEEL

and Steel Products

REPUBLIC STEEL CORPORATION Dept. C-2865, 3126East 45th Street • Cleveland 27, Ohio Please have a Republic Specialist call. Send more information on: 200 Series Stainless Steel Alloy Steels Nylok Nuts Name Title Company Address

Zone State

City_



Cost Cutting Catalogs

Data on Welded Steel Tubing

What is really a basic buying guide to welded steel tubing is condensed in a 12-page catalog. Included are size and gauge charts, inquiry information, a description of the process, selections of lengths, shapes, etc.

> Rome Manufacturing Division Revere Copper and Brass Inc.

Circle No. 91 on Inquiry Card-Page 17

Cutting Cost of Tool Room Steel

A 4-page engineer data bulletin gives typical analysis, heat treatment and forging practice for Ry-Alloy oil hardening tool steel. The material meets AISI-SAE-02 classification but still promises important cost savings. It's supplied in rounds, squares, and flats for a variety of applications.

Joseph T. Ryerson & Son, Inc.

Circle No. 92 on Inquiry Card-Page 17

Substitute for Wood, Metal

Masonite Presdwood products are described in detail in a 12-page bulletin. Physical properties, shapes, sizes and types of Presdwood are discussed. Fabricating techniques are also discussed. A variety of finishes of Presdwood are available.

Masonite Corporation

Circle No. 93 on Inquiry Card-Page 17

Hollow Stock Saves Material

If you're going to make a part with a hole in it, why not use raw material with a hole in it? You cut machining cost and also avoid buying material you don't need. This catalog "Hollow Aluminum Bar Stock," provides information on sizes, shapes, mechanical properties, etc.

Harvey Aluminum

Circle No. 94 on Inquiry Card-Page 17

Tubing in All Shapes

"Ostuco Tubing and Facilities" is a comprehensive catalog with separate sections on mechanical seamless carbon or alloy steel tubing, aircraft seamless tubing and electric resistance welded steel tubing. Included are important applications, size range tables, and sources of additional information.

Ohio Seamless Tube Division Copperweld Steel Co.

Circle No. 95 on Inquiry Card-Page 17

Tubing for Lower Cost

A new folder tells how to cut costs, get faster production and improved product design with welded steel tubing. Tubing may be ordered partly fabricated to special design, lowering overhead and reducing inventory. Types are also available which eliminate finishing operations.

Armco Steel Corporation

Circle No. 96 on Inquiry Card-Page 17

Steel Available from Stock

A new 232 page "Product & Warehouse Catalogue" describes over 700 products available from Crucible warehouses throughout the country. Listed are 16 categories of special purpose steels—including high speed, stainless, alloy and machinery—available in 16,000 grades and sizes.

Crucible Steel Company of America

Circle No. 97 on Inquiry Card-Page 17

Apply Silicones to Your Problems

Silicone glass laminates feature low moisture absorption, high arc resistance, low loss factors, and stable dielectric properties. A 4-page bulletin describes typical applications of the laminates to a wide variety of products and problems.

Dow Corning Corp.

Circle No. 98 on Inquiry Card-Page 17

Alloys for High Temperatures

Engineering properties and fabrication characteristics of ten alloys for high temperature service are described in detail in a new 20-page booklet. Included is information on physical constants, mechanical properties, heat treatment, forging, cold working, welding, and corrosion resistance.

Carpenter Steel Co.

Circle No. 99 on Inquiry Card-Page 17

Plastic Coated Pipe Is New

A four page folder describes a new type of plastic coated pipe. The new pipe is ideal for carrying corrosive materials. It has the strength of steel combined with the protection of plastic. As a result, it's ideal for many applications—and the cost is in line with the value.

Republic Steel Corporation

Circle No. 100 on Inquiry Card-Page 17



Fedders air conditioner cabinets begin with quality . . . the basic material, steel . . . which has its start in high-grade ores from Alan Wood's mines. These ores originate a chain of operations which deliver cold-rolled sheet that assures excellent cabinet quality.

Steel for these cabinets must meet tough requirements to provide long-term protection for the unit and maintain appearance in all types of weather. Alan Wood not only meets Fedders requirements but helps provide maximum production efficiency with minimum rejects because of material quality.

Detailed study of Fedders production methods and needs by Alan Wood metallurgists, plus exacting quality control and modern equipment in our plant, provide a supplementary selling feature for Fedders air conditioners—a consistently high quality basic material that helps build "reliability" into the end product—a basic requirement for volume sales.

For detailed information on any Alan Wood product, write Marketing Division, Dept. CR-S68

ALAN WOOD STEEL COMPANY

steelmasters for more than a century and a quarter • CONSHOHOCKEN, PA.

DISTRICT OFFICES AND REPRESENTATIVES: Philadelphia New York • Los Angeles • Atlanta • Boston • Buffalo • Cincinnati Cleveland • Detroit • Houston • Pittsburgh • Richmond • St. Paul San Francisco • Seattle

Montreal and Toronto, Canada-A. C. Leslie & Co., Limited

IRON PRODUCTS
"Swede" pig iron

STEEL PRODUCTS
Plates (sheared)
A.W. Dynalloy
(high strength
steel)
Hot rolled shevts
Hot rolled strip
Cold rolled strip
Cold rolled strip

ROLLED STREL FLOOR PLATE

A.W. ALGREP abrasice A.W. SUPER-

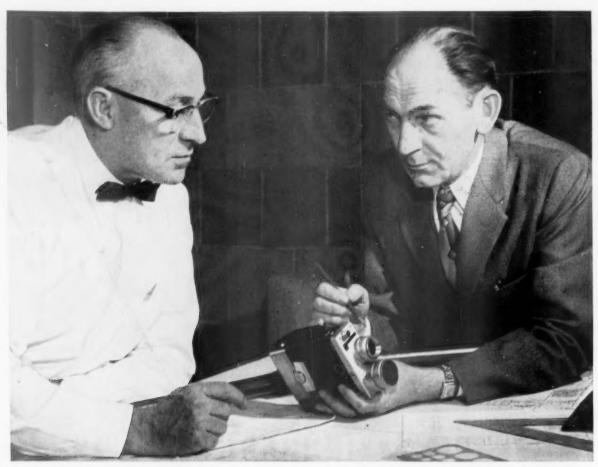
A.W. SUPER-DIAMOND pattern COAL CHEMICALS A.W. CUT NAILS Standard & Hardened

MINE PRODUCTS
fron ore
concentrates
fron powder
Crushed stone
Sand

COKE
Foundry,
industrial &
metallurgical

PENCO METAL
PRODUCTS DIVISION
Steel cabinets,
tockers & shelving

AW



Essential teamwork between design and production departments calls Oscar Riese, left, Superintendent of Metal Parts Manufacturing, into conference with Chief Engineer Paul Richartz, right.

BELL & HOWELL KEEPS COSTS IN SHARP FOCUS AND USES ALCOA SCREW MACHINE STOCK

Competition is toughest at the top. Nobody knows that better than Bell & Howell, world's largest manufacturer of motion picture equipment. On one hand, there's insistence on precision and fine appearance; on the other, emphasis on cost reduction through faster production.

Dilemma? No, because every time Bell & Howell engineers find a new and faster production technique, Alcoa® Aluminum Screw Machine Stock lives up to its end of the job. A classic example is the lens nose for their Wilshire 8 mm camera. The cycle time for drilling, turning, threading, forming, fluting and engraving this part in one complete operation now takes only 1/50 of the period required originally. Even so, surface finish is held to 32 rms, with other tolerances as tight as .001".

Bell & Howell took a long, hard look at every brass part during the shortages in 1951. They weighed aluminum's advantages—corrosion resistance, excellent machinability, light weight, ready availability and the low cost that comes with three times as many parts per pound. As a result, they're designing first for aluminum and using a whopping 300,000 pounds of Alcoa Screw Machine Stock annually.

To the values that prompted Bell & Howell's decision, add electrical and thermal conductivity. If these considerations prompt an analysis of your own requirements in screw machine stock, you'll find a man who can help at your local Alcoa sales office, listed under "Aluminum" in your phone book. Aluminum Company of America, 867-E Alcoa Building, Pittsburgh 19, Pennsylvania.





Lens mounts, control knobs, sprockets, film guide rollers and lens caps are among the typical parts machined by Bell & Howell from Alcoa Aluminum Screw Machine Stock.

IN PURCHASING

"We started with Alcoa and we've always bought from Alcoa. The fact we've never had a reject on their screw machine stock shows that our confidence is well placed. Technical counsel is another advantage. Alcoa helped us assess the relative values of corrosion resistance and machinability to select the alloy best suited to our needs. In the area of deliveries, we've had wonderful cooperation through coordination of shipments with our production schedules. Finally, since heavy stock removal is characteristic of our operations, resale of scrap is an important factor in material cost."

IN ENGINEERING

"Ours is a quality product, depending on a high caliber of precision and appearance for popular appeal. We value aluminum because it lets us design with assurance that the metal will measure up to our requirements and impose no problems in production. We have found that aluminum gives us the high finish and the perfect match from part to part that good appearance demands. We like the versatility that affords us a choice between plating and anodizing. Light weight, achieved with aluminum, is a significant sales point."

IN PRODUCTION

"Concentricity, depth of flutes, diameter of the bore on this lens mount are typical examples of the close tolerances demanded; .001" is common. Yet, when we find a way to cut production time on a part from more than four minutes down to 49 seconds, aluminum keeps pace with machining speeds. It doesn't punish the tools, so there's less down time for tool changes. And when we're handling 2" bar stock, its light weight is mighty welcome."

Purchasing session brings together Chief Metallurgist Arthur Bartmann, left, and Ernest Van Cleave, right, screw machine stock buyer.



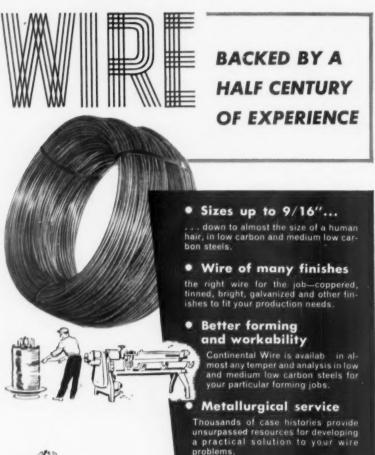
Checking the part (a telephoto lens mount) against the print are John Weber, left, general foreman, and George Sevick, right, operator.





Your Guide to the Best in Aluminum Value







ECONO-COIL—Reduces scrap loss up to 90 percent. Saves material handling time. The Econo-Coil gives you continuous length wire coils of 2000# to 3000# catchweight, in sizes from 12 gage through ½" diameter. Shipped on returnable Econo-Coil pallets.



LEVERPAK—Mechanizes your wire handling, protects wire against moisture, dirt and handling damage. **LEVERPAK** permits long uninterrupted runs of 500# to 650#, depending on wire sizes. Saves scrap, downtime, stores easily.



SPECIAL SHAPES—D-shaped, V-shaped, oval, half-oval, half-round, square, rectangular, triangular, keystone-shaped and others. Saves fabricating and machining costs.

Chances are you have a problem right now that we can help you solve—with Wire, Call us,

CONTINENTAL

STEEL CORPORATION . KOKOMO, INDIANA

Wire Specialists for over Half a Century PRODUCERS OF Manufacturer's Wire in many sizes, tempers, and finishes, including Galvanized, KOKOTE, Flame-Sealed, Coppered, Tinned, Annealed, Liquor Finished, Bright, and special shaped wire. Also Welded Wire Reinforcing Fabric, Nails, Continental Chain Link Fence, and other products.

For More Information Circle No. 739 on Inquiry Card-Page 17

Plastic Tanks Resist Corrosion from Grease



Plastic tanks are helping to solve the corrosive problems associated with the storage and processing of leather compounds at Salem Oil & Grease Company, Blubber Hollow, Massachusetts. These plastic tanks handle a wide variety of acid and alkali greases in temperatures from 65°F. to 165°F. Of the plastic tanks in use, ten are made of asbestos reinforced phenolic resin and another ten of glass reinforced polyester. All are products of Haveg Industries, Inc.

Circle No. 101 on Inquiry Card-Page 17

Permatex Pipe Joint Solves Air Conditioning Problem

A leading New York City contractor had difficulty installing air-conditioning piping in the upper floors of large buildings until he experimented with Permatex Pipe Joint Compound. The compound solved his problem-that of making certain airconditioning piping on the top stories of skyscrapers would withstand great hydrostatic pressure. Used in the 32-story St. Moritz Hotel, Permatex Pipe Joint Compound was found to have excellent adhesion to black steel piping which had to withstand hydrostatic pressure of 150 lb

Circle No. 102 on Inquiry Card-Page 17

USE INQUIRY CARD PAGE 17

NO PICKLING PROBLEM Too Large or Too Small

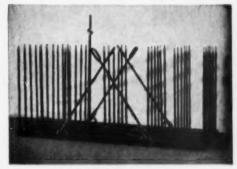
WELDCO Specialists Handle Them All!

IN HUNDREDS OF PLANTS, you'll find Weldco equipment all along the pickling line. For Weldco products are made of corrosion-resisting, hot rolled metals, that withstand attack from hot acids and other pickling solutions. They are strong yet lightweight, wear-resistant, durable, and long-lasting. You get all these advantages when you specify Weldco hooks, mechanical picklers, crates, baskets, racks, chain, steam jets, and accessories.

Weldco offers a complete, well-designed line of pickling equipment . . . plus the services of our experienced staff. Let Weldco engineers take care of all your pickling needs. For any problem, large or small, they have the practical, cost-cutting answer.



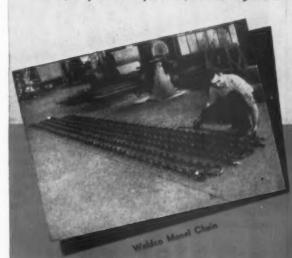
Weldco Pickling Hooks



Weldco Sheet Pickling Crate



Weldco Mechanical Drum Pickler



THE YOUNGSTOWN WELDING & ENGINEERING COMPANY

3712 OAKWOOD AVE. . YOUNGSTOWN 9, OHIO



For More Information Circle No. 741 on Inquiry Card-Page 17

Polyamide Tubing Cuts Material and Labor Costs



A maker of deep well water systems reports a 55%-60% savings in material and labor by using a specially processed polyamide tubing on a line of ejector type water pumps. The tubing is used between the pump case and the pressure switch. Principal savings stem from the fact that the corrosion resistant polyamide tubing, supplied by the Polymer Corp. of Pennsylvania, requires no deburring or prebending as was necessary with the copper tubing formerly used.

Circle No. 103 on Inquiry Card-Page 17

Special Process Tubing Ups Production 24%



A seamless steel tubing specially processed for easy machineability is responsible for a 24% production increase in threaded locknuts produced by Standard Locknut and Lockwasher, Inc. The company, which manufactures a full line of locknuts and lockwashers for ball and roller bearing applications, reported the increased production figures after they had switched to new NP-60 seamless steel tubing produced by Ohio Seamless Tube Division.

Circle No. 104 on Inquiry Card-Page 17

For More Information Circle No. 742 on Inquiry Card—Page 17→ what's behind the specs?

"right on the button...as usual! our PA knows what he's doing!"



WHEN it comes to dimensional accuracy, no one appreciates B&W Seamless Welding Fittings more than I do. The center-to-center accuracy on this B&W 10" return bend is 'right on the button' . . . even though standard tolerances allow a plus or minus 3/8". In this particular case, a borderline tolerance could result in a needless and costly waste of time, Fill-in welding or even complete remachining might be necessary."

"Thanks to their consistent dimensional accuracy, B&W Fittings are always well within tolerances. They fit up fast for easy, positive welding. This means rapid installation and the elimination of production hold ups. Next time, be sure to specify B&W Fittings."

B&W Seamless Welding Fittings and Forged Steel Flanges are available through B&W District Sales Offices and any qualified welding fittings distributor, in carbon steel and the famous B&W CROLOYS.

THE BABCOCK & WILCOX COMPANY
TUBULAR PRODUCTS DIVISION — FITTINGS DEPARTMENT
3839 WEST BURNHAM STREET — MILWAUKEE 46, WISCONSIN



Liquid Cement Saves on Assembly Costs

Permatex Stick-N-Seal, a rubber-based liquid cement, is saving money on assembly operations for a major manufacturer of production machinery. The liquid cement eliminates the need for assistants to hold parts in place while master mechanics place and tighten screws. Stick-N-Seal's initial tackiness and adhesion, plus the fact that it is easily applied by brush makes it ideal for jobs of this kind.

Circle No. 105 on Inquiry Card-Page 17

Leaded Steel Protects \$4,000 Investment

Steel to be used in a chrome plated mold contracted for by the Central Mold and Machine Co. had to be good-since about \$4 .-000 would be invested in machining time. And it had to be free machining, because the 6" mold involved the machining of tiny lands that formed the tire-tread design that was to be duplicated. The lands were only .015" thick. New E-Z-Cut plate, a leaded steel marketed by Joseph T. Ryerson & Son, was selected for the job. The steel machines as much as 30% faster than ordinary carbon steel plate, to a high finish.

Circle No. 109 on Inquiry Card-Page 17

Neoprene Triples Life of Machine Gripper Elements

A farm equipment manufacturer makes an electrical transplanter in which a series of gripper elements on an endless chain feed plants into the ground. Neoprene was selected for the gripper element following unsatisfactory experience with natural rubber. The manufacturer found that neoprene stands up for three or more planting seasons—while rubber grippers had to be replaced every season. He points out that the neoprene easily withstands the sun, oil and water exposure that it is regularly exposed to.

Circle No. 108 on Inquiry Card-Page 17

Zytel Parts Help Improve Equipment Performance

Molded parts of Zytel, a Du-Pont product, have helped Mergenthaler Linotype Co. achieve better performance from their highly-complicated, fast-running linotype machines. Mergenthaler uses Zytel for these parts: gears, control knob, sprockets, assembler star, matrix buffer, and stop sleeves. The material replaces cast iron and other metals. The parts have exhibited unusual resistance and impact strength, have helped to reduce noise, and have eliminated the need for lubrication wherever they are used.

Circle No. 107 on Inquiry Card-Page 17

33% Cost Reduction Through Use of Fiberglas

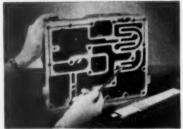
Wells Specialty Co. switched to Fiberglas-reinforced polystyrene for the hopper and handle of its salad cutter, and got these advantages: the material is resistant to food, acids, fats, soap, etc.; it won't become distorted in hot water, and won't break if dropped. In addition, making the two parts of the compound brought an estimated saving of 33 1/3% in costs. Molded-in bushings and inserts save machining costs. Lifetime color is molded in—saving on finishing costs.

Circle No. 106 on Inquiry Card-Page 17

Phenolic Foundry Resins Raise Shell Molding Output

Durez phenolics play a leading role in the shell molding production of a casting for a baseboard heating unit manufactured by Lakeside Bronze, Inc. Using shell molding, Lakeside Bronze has cut handling costs, drying time, and breakage losses. While material costs may be higher, these are mostly offset by the greater rate of mold production per man hour made possible by shell molding. Other savings have resulted from using unusually coarse sand with less Durez resin binder.

Circle No. 110 on Inquiry Card-Page 17



MEEHANITE CASTINGS ARE MADE ONLY BY MEEHANITE FOUNDRIES

The American Laundry Machinery Co., Rochester, N. Y. Atlas Foundry Co., Detroit, Mich. Banner Iron Works, St. Louis, Mo. Bornett Foundry & Machine Co., Irvington, N. J.

Blackmer Pump Co., Grand Rapids, Mich.
Centrifugally Cast Products Div., The
Shenanga Furnace Co., Dover, Ohio
Compton Foundry, Compton, Calif.
Continental Gin Co., Birmingham, Ala.
The Cooper-Bessemer Carp.,
Mt. Vernon, Ohio and Grove City, Pa.

Mt. Vernon, Ohio and Grave City, P. Crawford & Doherty Foundry Co., Portland, Ore.

Empire Pattern & Foundry Co., Tulsa, Okla. Florence Pipe Foundry & Machine Co., Florence, N. J.

Fulton Foundry & Machines Co., Inc., Cleveland, Ohio General Foundry & Mfg. Co., Flint, Mich. Georgia Iron Works, Augusta, Ga. Greenlee Foundry Co., Chicago, Ill. The Hamilton Foundry & Machine Co., Hamilton. Ohio

Hardinge Company, Inc., New York, N. Y. Hardinge Manufacturing Co., York, Pa. Johnstone Foundries, Inc., Grove City, Pa. Kanawha Manufacturing Co.,

Charleston, W. Va.
Koehring Co., Milwaukee, Wis.
Lincoln Foundry Corp., Los Angeles, Calif.
Palmyra Foundry Co., Inc., Palmyra, N. J.
The Henry Perkins Co., Bridgewater, Mass.
Pohlman Foundry Co., Inc., Buffalo, N. Y.
The Prescott Co., Menominee, Michigan
Rosedale Foundry & Machine Co.,
Pittsburgh, Pa.

Ross-Meehan Foundries, Chattanooga, Tenn.
Sonith Industries, Inc., Indianapolis, Ind.
Standard Foundry Co., Worcester, Mass.
The Stearns-Roger Mfg. Co., Denver, Colo.
Valley Iron Works, Inc., St. Paul, Minn.
Vulcan Foundry Co., Oakland, Calif.
Dorr-Oliver-Long, Ltd., Orillia, Ontario
Hartley Foundry Div., London Concrete
Machinery Co., Ltd., Brantford, Ontario
Otis Elevator Co., Ltd., Hamilton, Ontario



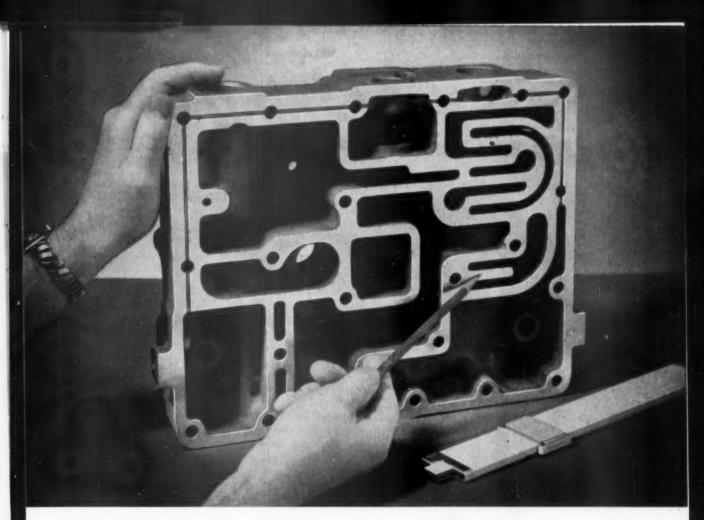
Send for your free single copy

This handy Meehanite Wheel Chart M-6 contains complete physical specifications:

Write today to Meehanite Metal Corporation, Department 2B, 714 North Avenue, New Rochelle, New York.

MEEHANITE®

For More Information Circle No. 743 on Inquiry Card—Page 17→ PURCHASING



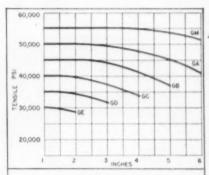
Rigidly controlled Meehanite metal assures uniform physical properties in all sections of complex castings.

This extremely complex Meehanite casting was made in large quantities for use in the production of military tanks. Every casting had to be completely free from defects in order to pass exacting inspection standards and uniformly high physical values were required, despite a number of intricate sections which varied from ½" to 2" in thickness.

Meehanite metal may be poured in both heavy and light sections, minimizing the danger of draws, shrinks, openness of grain and varying physical properties. Containing a controlled quantity of graphite in a pearlitic matrix, Meehanite castings shrink 50% less than steel during solidification, hence eliminating casting strains, warping and cracking.

The uniformity and control of the microstructure of Meehanite castings results in high strength, improved wear resistance, excellent vibration damping, dimensional stability, good machinability and many other engineering advantages.

For more information write today for a free copy of the Meehanite Wheel Chart M-6 which contains complete physical specifications.



Effect of increasing casting dimension on tensile properties of Mechanite castings.

MEEHANITE BRIDGES THE GAP BETWEEN CAST IRON AND STEEL®

MEEHANITE METAL

MEEHANITE METAL CORPORATION, NEW ROCHELLE, NEW YORK

Going up...

with a <u>lift</u> from FRASSE stock tubing!

Faced with an almost impossible delivery deadline, the maker of this hydraulic elevator needed a 6" OD ram and a 5" OD ram to telescope. Then too, he knew that final sizing would consume valuable time. With Shelby seamless tubing specified — and speed essential...he put in a hurried call to Frasse.

Frasse not only made delivery *immediately* from stock—but was able to *select*, from commercial tolerance material, two tubes so close to final size that only minor honing and turning were necessary. This lift from Frasse stock tubing enabled the elevator to be completely installed, approved...and in operation, days sooner than had been anticipated.

Tubing stocks at Frasse are in good supply – and quick Frasse delivery helps you get jobs done faster. So, depend on a dependable tubing source – call Frasse whenever you need mechanical tubing, stainless tubing, hydraulic and pressure tubing, centrifugally spun tubing – or even a bit of assistance from Frasse tubing specialists. They'll be happy to work with you on any problem involving a tubular product.

Frasse for Tubing...

Seamless and Welded Mechanical Tubing Pressure, Condenser and Hydraulic Tubes Stainless Tubing, Seamless and Welded Stainless Pipe, Valves and Fittings Aluminum Tubing, Pipe and Fittings PVC Plastic Pipe, Valves and Fittings

Peter A



& Co., Inc.

New York 13, N. Y. 17 Grand St. WAlker 5-2200

Courtesy: Industrial

Bervice Co.

Philadelphia 29, Pa. 3911 Wissahickon Ave. BAldwin 9-9900

LYNDHURST

Buffalo 7, N. Y. P.O. Box K, Station B BEdford 4700

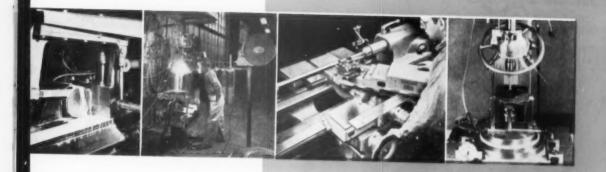
ROCHESTER

Syracuse 1, N. Y. P.O. Box 1267 HOward 3-8655

BALTIMORE

Hartford 1, Conn. P.O. Box 1949 JAckson 9-6861

For More Information Circle No. 744 on Inquiry Card-Page 17

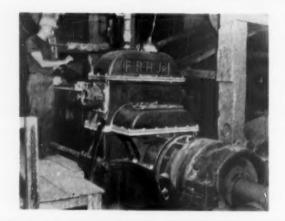


Case Histories
of
Value Analysis
in

Production Tools

Production Tools

CASE HISTORIES



Automation Boosts Output 20%

Mill Hall Clay Products, Inc. Mill Hall, Pa., manufacturer of clay drain tile and flue linings, recently installed a type FY-7 brick and tile machine, made by the Fate-Root-Heath Co. The new machine has increased the output of clay drain tile by 20%. In addition, there is an improvement in the quality of their product as a result of the greater efficiency of this new ceramic machinery, while time out for maintenance of the machine is only a couple of hours a month.

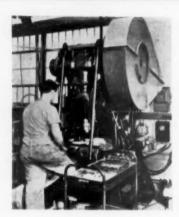
CIRCLE NO. 111 ON INQUIRY CARD-PAGE 17



Cut-Off Time Reduced to Seconds from Minutes

The bottleneck it encountered in cut-off operations on turret lathes has been eliminated by Jacy Mfg. Co., Brooklyn, N. Y., a manufacturer of precision instrument parts. Sometimes this could add up to three minutes for each piece, particularly with hardened metals. Jacy installed a Delta cut-off machine near the lathes. This has reduced cutting time to seconds as the operator can cut off a dozen or more pieces per minute. Chucking the pieces, required with pre-cut pieces, takes about the same time.

CIRCLE NO. 112 ON INQUIRY CARD-PAGE 17



Die Life Up 1600%

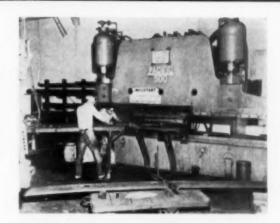
Voi-Shan Mfg. Co., Culver City, Calif., processes fasteners for both aircraft frames and jet engines. All of its titanium and some of its stainless steel bolts are hot forged to obtain the maximum in physical properties. When steel dies were used to make these fasteners, the heat involved in the hot heading caused a quick breakdown of the dies. Voi-Shan has solved the problem with precision-built Carboloy grade 190 cemented carbide dies. They make as many as 50,000 of the larger size bolts before showing signs of wear. Steel dies wore out after upsetting only 3000.

CIRCLE NO. 113 ON INQUIRY CARD-PAGE 17

\$6000 Attachment Does Work of \$90,000 Unit

A major agricultural implements manufacturer adapts a press brake to cut heavy, high carbon steel with a \$6000 shearing attachment. It was designed by the hydraulic press brake's manufacturer, Pacific Industrial Mfg. Co. The inexpensive attachment is used for production shearing of plate up to 1½" thick and 3' long. It does the work ordinarily performed by shears costing up to \$90,000.

CIRCLE NO. 114 ON INQUIRY CARD-PAGE 17



Saw Setup Doubles Production Rate

Making specially designed furniture for executive offices is the business of Walter P. Sauer & Sons, of Long Island City, N. Y. There is a considerable amount of tenon work involved to fit drawer bottoms in drawer sides, etc. Formerly, tenons were shaped on a single-blade machine. Now a Rockwell-Delta combined saw and shaper head is used, in which distance between shaper blades, not board thickness, determines tenon thickness. Drawer bottom pieces are now tenoned twice as fast.

CIRCLE NO. 115 ON INQUIRY CARD-PAGE 17



Carbide Insert Tools Show 5-to-1 Advantage

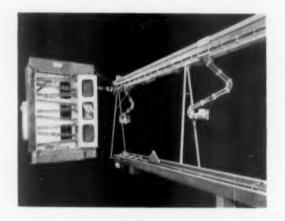
Hyster Co., Danville, Ill., recently conducted tests to evaluate the performance of throw-away carbide insert tools. The same Kennemetal Grade K21 carbide was used throughout. Using Kendex style KSDR-85 square turnover inserts, the number of 13" diam, 34" steel pieces turned to 1234" and chamfered averaged 242.4 per insert. This compared with 88 pieces per brazed tip tool with nine regrinds. Including tool cost per piece, over-all, Kendex tooling cost was one-fifth of that recorded for brazed tools.

CIRCLE NO. 116 ON INQUIRY CARD-PAGE 17





CASE HISTORIES



Feed Systems Cut Cost of Automated Manufacturing

A large automotive transmission plant has virtually fully automated its manufacturing operations without synchronization and without altering standard machine tools. It is currently turning out finished pinion gears at the rate of 900 pieces an hour. It has achieved this high productivity by linking the plant's standard machine tools into an integrated line by means of demand feed distribution systems engineered by Cargill Detroit Corp. Since, with these automating systems, it is unnecessary to scrap currently installed machine tools, they quickly liquidate their cost.

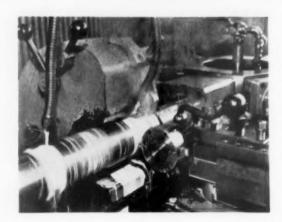
CIRCLE NO. 117 ON INQUIRY CARD-PAGE 17



One Press Does the Work of Two

A 4000-ton Hamilton press—the largest of its kind in the country—has been saving time and money in the production of truck and bus side rails in the Cleveland plant of Midland Steel Products Co. Operating three shifts a day, seven days a week, it does in a single hit a job that required two forming operations on a 3000-ton job. Because it does not introduce a camber or bow to the side rails—the horizental side members of the chassis frame—the huge Hamilton press eliminates the need for straighteing operations.

CIRCLE NO. 118 ON INQUIRY CARD-PAGE 17



Tooling Setup Saves \$30,000 Yearly on Production Costs

One of the oil well supplies manufactured by Baker Oil Tools, Inc., of Los Angeles is a retainer production packer body. This device, installed in oil or gas wells, holds pressures of about 10,000 psi. Formerly, the two halves of the centrifugal cast-iron packer body were rough turned and rough bored separately, reamed, honed, then finish-turned and threaded. By changing the tooling setup to gun drilling on a long bed turnet lathe, and using Carboloy grade 883 carbide tools, all turning requirements are now made in two main operations, saving \$30,000 a year.

CIRCLE NO. 119 ON INQUIRY CARD-PAGE 17



If you're in a hole . . .

BECAUSE OF GRINDING WHEEL PROBLEMS, there's an easy way to get back on top of the situation. Switch to CINCINNATI (PD)° WHEELS. Now CINCINNATI Grinding Wheels offer POSITIVE DUPLICATION—a remarkable achievement in precision manufacturing and quality control that can save you money . . . and increase your production.

It doesn't take any digging to find out why everybody's talking about (PD) WHEELS. Through the CINCINNATI (PD) Manufacturing Process you are assured Positive Duplication of the original wheel every time you reorder. "On grade" with a CINCINNATI (PD) WHEEL means all future (PD) WHEELS will act and grind exactly alike.

Yet CINCINNATI (PD) WHEELS are priced no higher than ordinary wheels.

"Trade Mark Reg. U.S. Pat. Off.

So, if you want back on solid ground again, see your CINCINNATI Grinding Wheels Distributor. He'll be glad to explain how (PD) WHEELS can save you money and increase production. Or, contact us direct and we'll send one of our representatives—men who know grinding and grinding machines as well as grinding wheels. Write, wire or telephone Sales Manager, Cincinnati Milling Products Division, Cincinnati 9, Ohio.

Remember—only CINCINNATI Grinding Wheels give you





A PRODUCTION-PROVED PRODUCT OF THE CINCINNATI MILLING MACHINE CO.



CASE HISTORIES



New Idea in Equipment Cuts Semi-Automatic Welding Costs 50%

A manufacturer of radar antennas replaced a conventional automatic welder with a small Metal & Thermit Corp. controlled arc power supply, a welder delivering pre-set constant voltage and automatically maintaining constant arc length used with a constant speed wire feed, Actual welding time immediately dropped from eight or nine hours to three or four hours. In addition the new unit produced more uniform welds with narrower, flatter beads—which cut grinding costs 80%. And repair work on defective areas was virtually eliminated.

CIRCLE NO. 120 ON INQUIRY CARD-PAGE 17



Switch To Broaching Ups Production Fourfold

Six evenly spaced external slots on an aluminum alloy adapter's flange were plunge milled at a rate of only 135 pieces per hour. It was decided to broach the 6 slots in one operation rather than mill them. Hartford Machine Screw Company came up with a tool design capable of producing high quality work, yet simple enough to meet the jobshop requirement of machine versatility. The new arrangement, using a specially designed split broach-holder has boosted production to 540 pieces per hour. Broach resharpening is required only once every 90-100 hours.

CIRCLE NO. 121 ON INQUIRY CARD_PAGE 17



Replaces 12 Milling Machines With One Broaching Machine

A Canadian arsenal recently installed a 25-ton 90"-stroke vertical dual ram broaching machine for work on an intricately contoured rifle receiver. The new machine replaced 12 milling machines used formerly. Results to date: 50% improvement in accuracy; 90% saving in floor space; 57% reduction in cost-perpiece; 75% reduction in production time; better surface finish; longer tool life; cutting speeds of 30 fpm instead of 3 fpm; 1 machine operator instead of 12. The machine was built and tooled by Detroit Broach & Machine Co.

CIRCLE NO. 122 ON INQUIRY CARD-PAGE 17

For More Information Circle No. 746 on Inquiry Card—Page 17→

PURCHASING

cut it with

CALIFORNIA !

stop

1881 A PEWELL

band saw blades

THE USER: Taywood Steel Products, Inc., Bell, Calif.
THE MATERIAL: A. Milne & Co. Solid and Hollow Tool Steels

THE JOB: Minimum 1/12" saw cut waste

THE PROBLEM: To eliminate uneven cuts and short blade life
THE ANSWER: Capewell <u>Cravenized</u> Metal Cutting Band Saw Blades

THE RESULT: Extreme accuracy—many cuts per blade—faster cutting

CAPEWELL AMMINISTRATIVE

Capewell Band Saw Blades can give you production bonuses, too. Available in regular, skip or shark tooth design, Capewell blades stay sharper longer and give more cuts per blade. Tooth by tooth, Capewell blades are a superior product, manufactured to rigidly controlled specifications—insist on Capewell for proved maximum saw performance and production economy.

SOLD ONLY THROUGH
CAPEWELL DISTRIBUTORS

who provide: complete inventory

. . . engineering assistance

... delivery when you need it.

THE CAPEWELL MANUFACTURING COMPANY

Hartford 2, Connecticut

Please send complete details on Capewell Band Saw Blades to:

NAME___

COMPANY

ADDRESS_

CITY__

TONE

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Do You Have A Deburring Headache?

GET THE FACTS ABOUT

CRATEX RUBBERIZED ABRASIVES

"The World's Best For Industrial Use"

Exceptionally superior and unparalleled for:

DEBURRING, SMOOTHING, CLEANING and POLISHING operations after dimensional shaping

For removing rust, heat-marks, tarnish, fatigue lines, scratches, excess solder, corrosion and other surface defects: for blending-in polishing welded seams, final sharpening and polishing to lustre-like finish.



CRATEX IS MADE IN FOUR DIFFERENT GRITS Coarse Grit to Extra Fine in WHEELS · POINTS · BLOCKS STICKS · CONES

For Machine or Manual Application on the broadest range of Hard and Soft METALS and other Materials

Backed by over 30 years industrial, professional and technical application, CRATEX Rubberized Abrasives are widely used nationally and in foreign countries. Made from "premium quality chemical rubber bonds" pressure-molded into uniform textures without hard or soft spots—resilient to absorb shock—ready for instant use—offer uniform controlled "cushioned action" with ease of manipulation for dimensional accuracy, without loss of tolerances.

OPERATE SAFELY, EFFECTIVELY AT SPEEDS UP TO 5,500 S.F.P.M.

Send for comprehensive illustrated catalog learn how CRATEX Rubberized Abrasives can cut your costs, speed production and insure quality results. Sold at leading industrial supply dealers.

CRATEX MANUFACTURING CO. 81 Natoma St., San Francisco 5, Calif. Save Time, Money in Grinding Optical Equipment



One company had been handlapping an optical measuring device with a stainless steel scale on which reflectivity and surface finish were most important. This method, however, was too costly because of the time involved in producing the close tolerances that were required. Carborundum Co. came up with the answer-an aluminum oxide resinoid fine-grit finishing wheel on a horizontal spindle machine. With this arrangement, a 21/2 MIRMS finish was produced on the scale, using a wheel grading of AHF-P-By at 6000 SFPM.

Circle No. 123 on Inquiry Card-Page 17

Eliminate Breakage of Hack Saw Blades in Use on Stainless



The Reisner Forge Company chose Capewell's shatterproof Safetech blade for high speed production line power hack sawing of stainless steel billets. They got more cuts per blade quickly and economically under heavy feed, while providing complete operator safety. In addition, they eliminated blade breakage.

Circle No. 124 on Inquiry Card-Page 17

Cuts
engine
wiring
time
66%

Military services and aircraft industry leaders throughout the free world now employ Robinson wire twisters, the original wire twisters, to effect tremendous savings in time and engine wiring.

Exclusive diagonal jaw design permits easier access to hard-to-reach areas, and delivers added leverage for twisting by pulling the wire into a 30° bend, creating a vice like grip that just won't slip.

Jaws and cutters are rehardened in an added process to serve when used on stainless steel wire.

The uniformly superior performance and long life of the Robinson wire twister is the product of vigilant adherence to the highest standards of quality control. List price is \$18.50. Two model sizes for production or shop use. 12" and 9" lengths.

Fully descriptive literature is available at your request.

RALPH C. ROBINSON CO., Dept. F, Box 3494, 2516 Crosby Way, North Sacramento 15, California.

ROBINSON wire twister

exclusive diagonal jaw design

For More Information Circle No. 748 on Inquiry Card—Page 17

For More Information Circle No. 749 on Inquiry Card—Page 17→ PURCHASING

For More Information Circle No. 747 on Inquiry Card—Page 17



TOOL LIFE INCREASED 400%

CLEVELAND Carbide Tipped Adjustable Reamer sets new high record!

The specifications on this job call for reaming a 4½" hole to a tolerance of .001" and a surface finish of less than 50 R.M.S. (micro-finish). CLEVELAND Carbide Tipped Adjustable Reamers are meeting these requirements day after day...month after month...and reaming five times as many holes per grind as the conventional high speed reamers formerly used.

Whenever you have a difficult reaming problem, a CLEVELAND Service Representative can help you. Contact our nearest Stockroom, or...



Request your copy of this descriptive booklet on CLEVELAND Carbide Tipped and Solid Carbide Cutting Tools

TELEPHONE YOUR INDUSTRIAL SUPPLY DISTRIBUTOR



THE CLEVELAND TWIST DRILL CO.

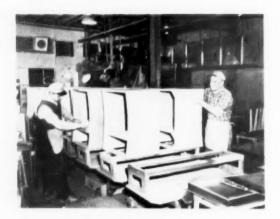
1242 East 49th Street

Cleveland 14, Ohio

Stockrooms: New York 7 • Detroit 2 • Chicago 6 • Dallas 2 • San Francisco 5 • Los Angeles 58
E. P. Barrus, Ltd., London W. 3, England

Production Tools

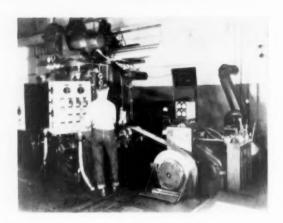
CASE HISTORIES



New Finishing Paper Saves \$130 per Month

For finishing its TV cabinets, Emanuel Products, Toronto, Canada, wanted a finishing paper that would stand up better than the paper it had been using. The company tested Canadian Carborundum Co.'s Fasteut finishing paper and found that one sheet would do the same amount of work that formerly required four sheets. Emanuel had been using 10,000 sheets of finishing paper per month but with Fasteut needed only 2500 sheets. The monthly savings totaled \$129.75.

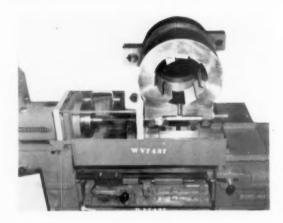
CIRCLE NO. 125 ON INQUIRY CARD-PAGE 17



Capacity Boosted 40% With New Mill

Newman-Crosby Steel Co., producers of close-gage cold-rolled strip, raised its capacity 40% by installing a Bliss 4-high reversing mill as well as new coil-handling and heat-treating facilities. The mill is used to roll high-carbon and alloy spring steel in gages between 0.125 in. and 0.010 in. in widths up to 12 in. and speeds to 800 FPM. In actual operation all these design specifications have been exceeded.

CIRCLE NO. 126 ON INQUIRY CARD-PAGE 17



Gun Drilling Cuts Cost \$280,000

In some gun-drilling operations at the Watervliet, N. Y., arsenal, the Ordnance Corps has cut machining time as much as 50%. Using a modified horizontal precision boring machine made by Eldorado Tool & Mfg. Co. it has been possible to produce holes with less than 0.002 in. per ft runout, diameter within 0.0005 in. of the prescribed dimension and a surface finish smoother than 16 mu in., rms.

CIRCLE NO. 127 ON INQUIRY CARD-PAGE 17

You Get Many Benefits By Specifying VICKERS. Hydraulics

Reduced Maintenance Costs

Vickers Oil Hydraulic Equipment is built to minimize maintenance . . . has an outstanding performance record. Nevertheless, Vickers recognizes that sooner or later any piece of machinery requires overhaul. So we have developed a service department of exceptional efficiency . . . one that is convenient for you by reason of full time factory-trained service men working out of our offices from coast to coast. Shown below are several of the practical aids provided to assure you quick and economical service on Vickers Hydraulics.

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DETROIT • GRAND RAPIDS • HOUSTON • LOS
ANGELES AREA (El Segundo) • MINNEAPOLIS • NEW
YORK AREA (Summit, N. J.) • PHILADELPHIA AREA
(Media) • PITTSBURGH AREA (M. Lebanon) • PORTLAND,
ORE • ROCHESTER • ROCKFORD • SAN FRANCISCO
AREA (Berkeley) • SEATTLE • ST. LOUIS • TULSA
WASHINGTON • WORCESTER
IN CANADA: Vickers-Sperty of Canada, Ltd., Toronto



SPARE PARTS RECOMMENDATIONS

Our service men will study your situation and make practical recommendations on your spare parts inventory . . . will check your inventory and provide you with printed lists of parts usually required.



SERVICE KITS

Packaged repair kits for many Vickers products are available. These provide all needed parts for quick repair in the field and at minimum cost. In addition, these kits simplify stock problems by reducing the number of loose parts.



PREVENTIVE MAINTENANCE

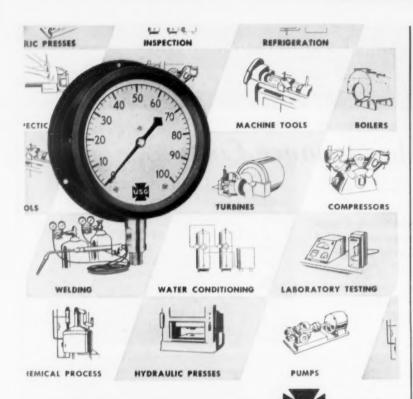
Our service men will gladly set up for you an effective program of preventive maintenance on a timetable basis. This avoids costly down time and keeps maintenance costs at a minimum.



Vickers maintains a Hy-

draulics Training School for engineering, maintenance and service personnel of both original equipment manufacturers and their customers. For further information, please contact Product Service Department directly.

BUILDERS OIL HYDRAULIC EQUIPMENT SINCE 1921 ENGINEERS AND



industry buys more gauges than any other make

HERE'S WHY

- Practically all industrial gauge requirements can be met by USG.
- For high sustained accuracy . . . for long, trouble-free service under severe temperature and atmospheres . . . there's the Supergauge and Solfrunt Series.
- · For less exacting applications there are thousands of gauges . . . cast case and drawn steel case units...each with components specially qualified for its particular function.
- Every gauge is backed with more than 50 years experience in gauge construction . . . with research that puts every type of gauge through simulated service conditions for months before it is marketed . . . with quality control that enables USG to guarantee performance in service.
- Buy USG gauges . . . pressure and temperature pilots, recorders and controllers . . . transmitters and thermometers . . . and be assured of guaranteed satisfaction in quality, performance and dependability.

Consult the "Yellow Pages" of your phone book for the name of your USG distributor. Call him or write the factory for catalogs.

Supergauge and Solfrunt Reg. T.M.

Sellersville, Pa.

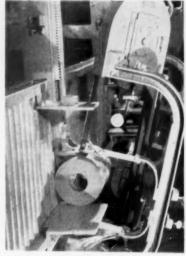
Division of American Machine and Metals, Inc.

Home of the SUPERGAUGE

MORE THAN 50,000 TYPES OF GAUGES . SUPERGAUGES . SOLID FRONT GAUGES . RECEIVER GAUGES . TEST GAUGES . RECORDERS . CONTROLLERS . TRANSMITTERS . PSYCHROMETERS . AVIATION INSTRUMENTS

For More Information Circle No. 751 on Inquiry Card-Page 17

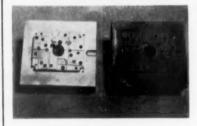
Eliminate Band Saw, Cut Waste



Taywood Steel Products, Inc. was able to eliminate uneven cuts and short blade life when cutting solid and hollow tool steels. Capewell Cravenized metal cutting band saw blades were used. Taywood was able to maintain a minimum 1/32" saw cut waste. Taywood also achieved extreme accuracy, many cuts per blade with faster cutting.

Circle No. 128 on Inquiry Card-Page 17

Wet Blasting Saves Time in Precision Cleaning



A Chicago die shop cut the time needed to descale hardened plastics molds by having them wet blasted. On a set of 17 typical cores, sized 4 x 4½ x 1¾ in., 7 minutes of wet blasting per piece replaced 2 hours of manual polishing per piece. The wet blasting is performed in a Liquamette machine made by Wheelabrator Corp. Where required tolerances of .0001 are maintained with the wet blasting method. Circle No. 129 on Inquiry Card-Page 17

For More Information Circle No. 752 on Inquiry Card—Page 17→

PURCHASING

BAY STATE



To the parachutist, precision performance means rigid training, snap judgment, and nerves of steel.

To tap users, precision performance means production-line continuity, better threaded parts, increased tap life . . . and BAY STATE!

BAY STATE TAPS

Bay State Tap & Die Company

Mansfield, Massachusetts

On the shelves of your local Industrial Supply Distributor





CASE HISTORIES



Pneumatic Tacker Ups Production One-Third

Workmen equipped with Swingline industrial air tackers are upholstering four dinette seats in the time previously required to complete only three at a large furniture manufacturing plant. The pneumatic tacker is used to staple vinyl material to plywood chair seats. Firing 5000 staples without reloading—compared with 140 staples per load with conventional tackers—the Swingline unit stepped up production 33 1/3% by drastically reducing the time lost during reloading.

CIRCLE NO. 130 ON INQUIRY CARD-PAGE 17



Optical Gaging Saves \$89,000

Optical gaging recently solved a difficult problem for a major appliance manufacturer. Prior to the introduction of projection inspection techniques, quality control inspection of an integral cam-type part required 720 separate hand tool measurements. After a Kodak contour projector was installed, all the inspectors have had to do is watch the travel of a shadow on the projector's viewing screen. Several hours of hand tool measurement have been reduced to a 35 second inspection process for an annual saving of \$89,000.

CIRCLE NO. 131 ON INQUIRY CARD-PAGE 17



Do 8 Hour Drilling Job in 2 Hours

Koch Fiberglas is saving 6 man hours on tough overhead drilling jobs by using a Bux portable magnetic drill press. It used to take two men 8 hours to drill 90 9/16 in. holes in platens to make die changes. With the Bux drill press, two men are doing the job in less than 2 hours. Koch reports the savings from one month's use of the drill press more than paid for the new unit.

CIRCLE NO. 132 ON INQUIRY CARD-PAGE 17

For More Information Circle No. 753 on Inquiry Card—Page 17→



dividually or in sets. Selection of three sets available.





Continental Counterbores are designed so that cutting torque produces compression rather than shearing stresses. This counterbore never binds—you get quick, easy disengagement after all cutting operations. Antiwedging action saves time and tools.

Continental Counterbores have double driving lugs on the cutters which engage double abutments in the holders, making a single powerful tool out of the cutter and holder. Double bearings, one above and one below the lugs and close to the cutting edge, guarantee rigid alignment of holder and cutter. For more information or literature on Continental Counterbores, call your local Ex-Cell-O Representative or write to Continental Tool Works in Detroit.

Ontinental TOOL WORKS

EX-CELL-O CORPORATION . DETROIT 32, MICHIGAN

HY-PRO specialists deliver

savings as high as 98%

with taps of special design

While HY-PRO standard taps meet most production needs, you can rely on HY-PRO specialists to tell you when it will pay you to use a tap of special design. You can also rely on the design they develop to deliver maximum savings, — in tap expense, in production time. The proof is in the records of hundreds of jobs like the two described below. Why not let HY-PRO engineering ability and experience uncover comparable savings for you?

from 300 to 18,000 holes per tap...



Tap Cost SAVINGS 98%

Friable plastic part for electronic industry. Previous tap life of 300 holes-per-tap boosted to an 18,000 rate with the use of a multi-fluted tap specially designed by HY-PRO specialists. Tap cost saving — 98% plus. HY-PRO pioneered development of taps for plastics, and has wide experience with all types of compositions that can be applied to your advantage.

000000000000000000

from 100 to 800 holes per tap...



Fap Cost SAVINGS 88%

Stainless steel aircraft part. HY-PRO tap of special design raised tap life from 100 holes-per-tap to 800. Threading with the originial tap was rough, varying over tolerance. With the HY-PRO special, it is smooth, clean, consistently Class 3. Savings in tap cost — 88%; plus an additional big saving gained by eliminating rejects previously scrapped because of inaccurate threading.



The Tap Engineering Specialists

Why "special" tap development brings you better "standards"

Even though you never need "specials", you benefit by HY-PRO leadership in special tap design. The intensive research and testing involved is all reflected in constant improvement of HY-PRO standard taps. It costs nothing to consult HY-PRO specialists, and they can often point out opportunities for substantial savings, even in tapping operations you've considered satisfactory. What's your problem? Write: Dept. F.

ASK FOR STOCK LIST OF SPECIAL TAPS
AVAILABLE FOR IMMEDIATE DELIVERY

CALL YOUR LOCAL HY-PRO DISTRIBUTOR FOR STANDARD TAPS FROM STOCK HY-PRO TOOL COMPANY NEW BEDFORD, MASS., U. S. A.

SOSSNER TAPS

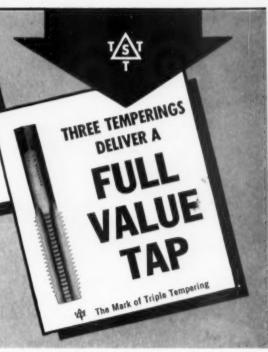
are <u>triple</u> tempered

ONE TEMPERING DELIVERS

1/2 ATAP

Yesl Sossner taps are tempered, not just once, not just twice, but THREE TIMES. The result . . . a tougher, more reliable, longer lasting tap . . . less chipping . . . less breakage.

Triple Tempering, standard with Sossner, can make all the difference. Get FULL VALUE taps...Get SOSSNER.



OTHER SOSSNER EXCLUSIVES

TWO TEMPERINGS

DELIVER

ATAP

elektraLUBE...

A permanent Super-Aubricant

High pressures at A and B will force out conventional lubricant elektraLUBE takes over at these critical points and provides permanent super-lubrication.



SPIRAL TAPS...

The most complete line

Regular Style.....#4 thru 5/16"

Hook Style.....#3 thru 5/16"

Three Flute Style...... 1/4" and 1/2"

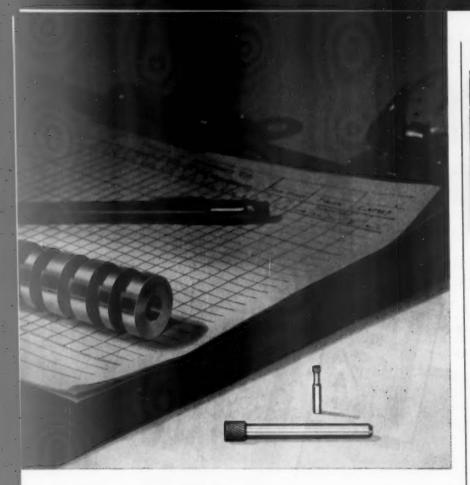
Double Scoop Style... Special Application



SOSSNER TAP & TOOL CORPORATION
29 BROADWAY, LYNBROOK, L.I., N.Y.

Inquiries from representatives and distributors are invited,

FACTORY WAREHOUSES IN NEW YORK AND LOS ANGELES . DEALER STOCKS IN OTHER CITIES



Figures Prove They Last 3 Times Longer!

When it comes to finishing small holes — down to .032" diameter — P&W Kellerflex Carbide Hole Finishing Burs have proved on job after job that they will consistently outlast and outperform all other finishing methods and competitive burs. On one recent job, P&W Burs lasted more than 3 times longer than the next best. On another, they delivered up to 5000 pieces per bur. In addition, P&W Burs speed up production . . . machining time is as little as 30 seconds per piece. Accuracy and finish are improved . . . work has consistently been held to .0002" for size, .00005" for roundness, and 4 micro-inches for finish! The fast-growing miniaturization market can mean BIG profits from small parts, and P&W Carbide Burs finishing small holes can help you get your share.

Write now for complete information. Pratt & Whitney Company, Incorporated 19 Charter Oak Boulevard, West Hartford, Conn.











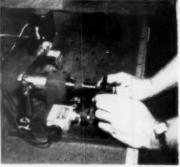
THREAD ROLLING DIES . DUOCONE DIES . TAPS . THREAD MILLING CUTTERS . REAMERS



PRATT & WHITNEY

FIRST CHOICE FOR ACCURACY
MACHINE TOOLS . GAGES . CUTTING TOOLS

Reverse Screw Driver Doubles Production



In making the sub-assembly of a thermostatic control, a No. 4 brass screw must be driven head first into a brass lug mounted on a piece of plastic to permit welding a sliver contact to the other end. The problem has been solved and production doubled for one company by setting an Ingersoll-Rand air screw driver in a bench mounting with a sliding fixture in front of it to hold the plastic piece. As the screw is started head first into the plastic piece, and the piece inserted into the fixture, the screw driver, operating in reverse, pulls the screw into the threads, thus forcing the plastic piece and fixture away from the screw driver. At the correct depth, the movement of the fixture trips a micro switch and a solenoid-operated air valve shuts off the air supply and stops the tool.

Circle No. 133 on Inquiry Card-Page 17

Cost of Finishing Aluminum Casting Reduced by 44%

Stanley Tool Company has reduced the cost of the operation on carpenter's levels by 44%. This is accomplished through the use of a Precise Super 40 Grinder-Miller. In a finishing operation, the aluminum casting is moved against the rotary tool which remains fixed, to rout out casting flash and de-burr the center area. The light-weight, compactness and the slender spindle of the Super 40 make it easy to mount in an inverted position for this operation.

Circle No. 134 on Inquiry Card—Page 17 For More Information Circle No. 756 ←on Inquiry Card—Page 17

PURCHASING

Denison Press Solves Engineering Problem



When Waterman Pen Co. designed the first cartridge-filled pen point, no way had been found to mass produce it. The design was so intricate that blanking, piercing and stamping operations, normally performed progressively, had to be completed in one operation because the pen point tapered from one end to the other. Denison Engineering Div., American Brake Shoe Co., supplied a specially tooled 4-ton Multipress which was able to turn out the point which many companies had thought was impossible to make. In addition, Waterman's operating costs were reduced because three operations were combined in one.

Circle No. 135 on Inquiry Card-Page 17

New Grinding Technique Cuts Production Costs

Carborundum Co. developed a new grinding technique which made it possible for one company to reduce production costs on a small screw-machine part and also eliminate one of two grinding operations. With the new technique one grinding wheel equals the production rate, maintains the size, and produces the same finish which formerly required two wheels and two machines. All that was involved was selecting the proper wheel grade, machine set up, and grinding fluid for the type of hardened steel used in this particular appli-

Circle No. 136 on Inquiry Card-Page 17

For More Information Circle No. 757 on Inquiry Card—Page 17→

MAY, 1957



...BECAUSE P&W KELLERFLEX® BURS are MASTER MACHINE GROUND

Precision in every respect, they cut faster and smoother without chatter or bounce and deliver an overall performance efficiency that *no* hand ground bur can possibly match. All P&W Burs of the same size and shape are exact duplicates . . . have identical cutting characteristics. And you can select the right bur for all your jobs from the complete P&W Kellerflex line that includes: high speed steel or solid carbide types, 3 basic cuts, 4 shank sizes, 6 types of master ground fluting and 18 standard shapes (plus hundreds of specials). Available from stock at the P&W Branch Office near you.

Write now for complete information. Pratt & Whitney Company, Inc. 19 Charter Oak Boulevard, West Hartford, Conn.













. MILLING CUTTERS . CUT-OFF BLADES . END MILLS . KELLER CUTTERS . KELLERFLEX BURS .



PRATT & WHITNEY

FIRST CHOICE FOR ACCURACY

MACHINE TOOLS . GAGES . CUTTING TOOLS



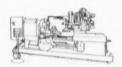
(PHOTO COURTESY OF YORK CORPORATION, YORK, PENNSYLVANIA)

SAVED 85% ...

. . . OF MACHINING TIME ON

ONE PRODUCTION RUN, 55% on another, and more than paid for itself in just one year! These are the facts the York Corporation reports about the Potter & Johnston 3-U Automatic Turret Lathe purchased as a cost reduction measure. Success stories like this typify the cost-saving performance that manufacturers everywhere have come to expect when they replace with truly modern P&J Automatics, designed and built to meet today's and tomorrow's production needs! And there's a P&J Automatic Turret Lathe for every work size requirement. Write for complete information. Potter & Johnston Company, Pawtucket, Rhode Island.









AUTOMATIC TURRET LATHES . . . GEAR CUTTERS . . . GILDA PACKAGING MACHINES



POTTER & JOHNSTON

SUBSIDIARY OF PRAIT & WHITNEY COMPANY, INC.

PRECISION PRODUCTION TOOLING SINCE 1898
For More Information Circle No. 758 on Inquiry Card—Page 17

Spray Method Saves Money on Extrusion Die Lubrication

Manufacturers producing extruded light metals, particularly aluminum, can cut cos.s by using the spray method of die lubrication. De Vilbiss Co. points out the following advantages of the spray method: (1) Lubricants which usually contain a caustic, are in a sealed container and can't spill, drip or splash on the operator; (2) Atomization of the material and the velocity provided by the spray system force the lubricant deep into the die and insure a coating on all vital surfaces; (3) Use of an extension on the spray gun permits the operator to lubricate the die without placing any part of his body in the machine-another safety factor; (4) The spray system is faster than hand lubricating; (5) Proper use of equipment can result in savings of up to 50%; (6) Rejects of extruded parts due to scratching and scoring are reduced as much as 30% to 50%.

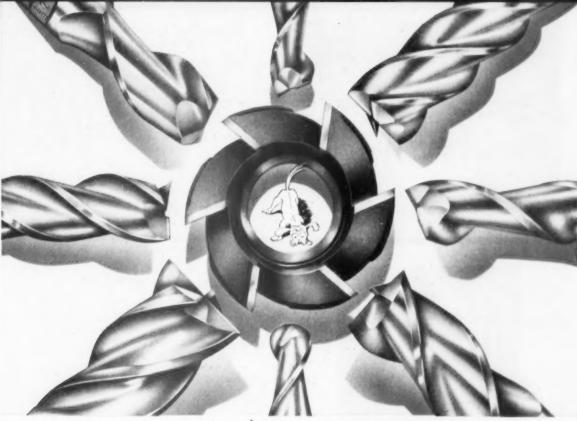
Circle No. 137 on Inquiry Card-Page 17

Combining Operations Cuts Machining and Subcontracting Time

Baker Oil Tools, Inc., recently installed a Gisholt 3L saddle-type turret lathe, tooled to complete all turning requirements on cast iron retainer production packer bodies in one operation. As a result, production time has been reduced by more than 25%. The 4-in. diameter, 31-in. long workpiece is chucked in the lathe and rough and finish machined both inside and out except for 5 in. on one end needed for chucking. The operation includes roughing and finishing the outside, cutting one eight-pitch V-thread, one 16-pitch buttress thread, and gun drilling and burnishing the bore the entire length of the part. After gun drilling, a roller burnishing tool is pushed through the bore, sizing the hole and providing the proper finish. Baker believes the savings made possible by this new setup will pay for the machine in the first 15 months of operation.

Circle No. 138 on Inquiry Card-Page 17

STANDARD END MILLS for ALUMINUM



For further information on Putnam End Mills for Aluminum, write for Catalog 457.



Standard End Mills . . . For the first time you can select from a complete line of **standard** end mills designed specifically for milling aluminum . . . Putnam stocks 185 **standard** types and sizes.

New Designs . . . These standard end mills have been developed through years of research and experience on aluminum applications. Over a year ago, Putnam introduced the first standard end mills designed for milling of aluminum. Today, no other manufacturer offers as complete a line of standard end mills for aluminum.

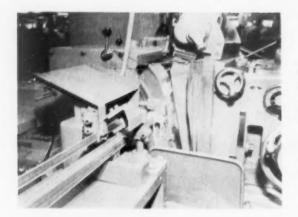
Contact your Putnam Distributor for personalized service, quick delivery of the finest standard end mills for aluminum.



For More Information Circle No. 759 on Inquiry Card-Page 17

Production Tools

CASE HISTORIES



Centerless Grinder Output Raised by 50%

Bendix Aviation's Scintilla Division met the need for large quantity production of precision ground tellurium copper and brass bar stock by teaming up a Lipe-Rollway automatic magazine-loading bar-feed with an advanced model Cincinnati No. 2 centerless grinder. Twelve ft lengths of stock are ground to a diameter tolerance of .0005 in.—at 12 ft per minute. The air-operated bar feed has raised output of the centerless grinder to 90% of capacity compared with 60% manual loading.

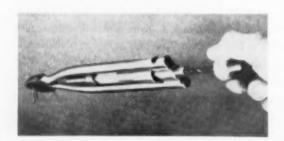
CIRCLE NO. 139 ON INQUIRY CARD-PAGE 17



6 Week Job Now Takes 24 Hours

High speed photography is taking the guesswork out of product engineering and development at Felt & Tarrant Mfg. Co. Recently a 6-week engineering job was completed in 24 hours with the aid of a Kodak high speed camera. In this case, the film was converted to a positive for viewing—where only negatives are needed, F & T engineers can get their answers in a single hour. Addition of the high speed camera has increased the capacity of F & T's engineering substantially with no addition to the payroll.

CIRCLE NO. 140 ON INQUIRY CARD-PAGE 17



Tool Saves \$140 On Each Wiring Job

At McClellan Field they are saving \$140 in labor costs on each aircraft engine wired. The cost cut is made possible by use of automatic wire twisters manufactured by Ralph C. Robinson Co. The twisters reach into difficult access areas in the aircraft engine, take an unyielding bite on the wire and deliver a perfectly uniform infinite number of twists. The tool is actually three tools in one—twister, plier and cutter.

CIRCLE NO. 141 ON INQUIRY CARD-PAGE 17

If you run two or more fasteners at the same time-cut costs with

THOR MULTIPLE NUTSETTERS AND SCREWDRIVERS



Now, thanks to Thor multiple nutsetters and screwdrivers, the largest to the smallest assembly operation can enjoy the cost cutting benefits of automation. If you have production assembly jobs involving 2 to 20 or more nuts or screws, Thor multiples can return their cost in labor savings, in improved quality control, time and time again.

Running multiple fasteners at one time means every fastener is tightened to identical torque simultaneously with no shift in tensile load equilibrium which occurs when fasteners are tightened one at a time.

For the complete story of how Thor multiples can help you, write today for Thor's free book "Automation in Assembly." Thor Power Tool Company, Prudential Plaza, Chicago 1, Illinois.

THOR POWER TOOL CO., CHICAGO

Branches in all principal cities



Thor multiple tools can be custom-built to any pattern, any number

2-Balt-Pattern

Arc. segment Bolt Pattern

(Any arc.—any number of bolts)

Bo. Line Multiple Bolt Pattern

(Any number of bolts)

ANTO MALION	FREE AUTOMATION MANUAL ON MULTIPLE FASTENER SETTINGS Pictures, diagrams, all the facts
NAME	
TITLE	
COMPANY_	
STREET	
CITY	ZONE STATE



Progress Means a Better Way of Doing Things...



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Mid-West Abrasive Patented Automatic Billet Grinder

It's a big step from the old foot-treadle grinding wheel to the hand-operated swing frame grinder. But: it's an even bigger step from the swing frame grinder to Mid-West's Automatic Grinding Machine, which today is reducing costs and increasing production in grinding operations at steel mills throughout the country.

Yet, progress such as this is a normal outgrowth of vigorous research engineering and development at Mid-West Abrasive, where "Progressive Thinking" dictates that normal progress is no longer adequate to meet today's highly competitive conditions. The result: highly skilled engineers and technicians are constantly developing newer products and maintaining top quality in all Mid-West products.

Discover what "Progressive Thinking" can do for you. Write for the name of your Mid-West representative. Get the story on the Mid-West line of grinding wheels, coated abrasives, honing stones, and abrasive grains.

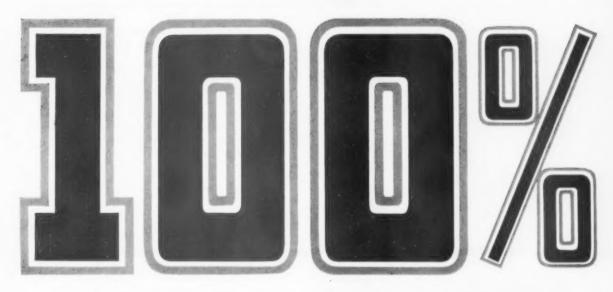
Mid-West wants to be more than just another source . . . we want to be your working partner on all your abrasive needs.

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Executive Offices: 510 S. Washington St. Owosso, Michigan

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on drills and reamers



100% Complete Line — Every Tool 100% Inspected . . . and you get 100% SERVICE FROM YOUR BUTTERFIELD DISTRIBUTOR

Butterfield supplies taps and dies, cutters and end mills, hobs, and a full line of carbide cutting tools. There are Butterfield warehouses in Chicago, Cleveland, Detroit, Fort Worth, Los Angeles, New York, San Francisco. BUTTERFIELD DIVISION — Union Twist Drill Company — Derby Line, Vermont.

CASE HISTORIES



Turret Lathe Reduces Machining Time 47%

Hanna Engineering Works has cut machining time 47% on a variety of valve parts machined from round and hexagon aluminum bar stock. A Gisholt Masterline No. 5 ram type turret lathe equipped with a hydraulic drive unit which controls all machine functions does the job. Set-up time is no longer than for a standard hand-operated turret lathe. The hydraulic drive makes possible continuous production without operator fatigue, assuring accuracy, consistent quality and maximum tool life through automatic selection of correct speeds and feeds.

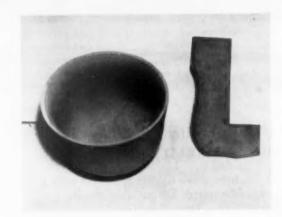
CIRCLE NO. 142 ON INQUIRY CARD-PAGE 17



Production Time Slashed By Special Drilling Machine

Massey-Harris-Ferguson realized a saving of 60 manhours per 100 parts, \$30,000 in machine cost and a 65% saving in floor space by installing three multi-spindle drilling machines to process front axle supports for tractors. The alternate methods would have been to use nine general purpose machines. Supplier of special multi-spindle machines was the National Automatic Tool Co.

CIRCLE NO. 143 ON INQUIRY CARD-PAGE 17



Carbides Up Production From 900 Pieces to 1700

Use of cemented carbide metal at Scio Pottery Co. has outmoded former production processes and in some cases quadrupled output. Key to increased production is the solid Carboloy grade 883 carbide knife used in the shaping operations. In effect, the metal, by resisting the abrasive wear of clay, has been virtually responsible for automating the whole plant. Typical is the improvement in jiggering. Using a single carbide knife, Scio can now shape 1700 dozen pieces of ware every 24 hours. The former rate was only 900 pieces.

CIRCLE NO. 144 ON INQUIRY CARD-PAGE 17

For More Information Circle No. 763 on Inquiry Card—Page 17→ PURCHASING



Ruggedness and Refinement These two things you might not expect to find combined in one tool. You will find both, however, in GTD-AMPCO End Mills.

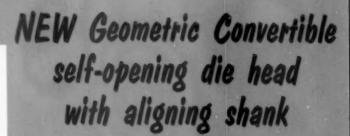
The precision finish of the shanks, the uniformity of the cutting teeth, the exactness of size assure accuracy in use. Design, steel selection and precisely controlled heat treating give them their ruggedness.

AMPCO TWIST DRILL DIVISION

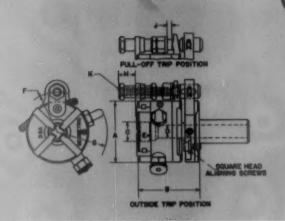
GREENFIELD TAP and DIE CORPORATION

Making the best...BETTER

- Ease of assembly and disassembly.
- improved driving construction for freer and smoother operation.
- improved locking bolt and segment providing greater wear life.
- Tongue and groove drive between cam spring plate and skeleton.
- More rugged construction of small parts
 — new and heavier stop plunger, larger
 adjusting screws (Hollow Hex), heavier
 tripping mechanism, larger cam spring
 plate screws without increase in size
 or weight of die head.
- flatted construction of backpart and shank (permitting the die head to be installed as close to the turret as possible without interference).
- 7. Better interchangeability of parts.
- Present DS chasers interchange in New "DSA" Model.







There is no better Die Head available for use on Brown and Sharpe and other small screw machines of either the automatic or hand type than the NEW Geometric convertible self-opening style DSA Die Head.

The NEW DSA comes with an aligning shank which permits adjustment for machine misalignment. It is equipped, also, with both Outside Trip for short length, fine pitch shoulder threading and a Pull-Off Trip for threading lengths providing ample chaser engagement for tripping. Conversion from one trip to the other is quick and simple. The DSA is especially recommended for cutting fine pitch threads of short lengths.

An outstanding Die Head that is really rugged, requires minimum attention and is easier to adjust, the DSA now joins the Geometric family of the best in precision threading tools.

SPECIFICATIONS - STYLE DSA For the present the DSA is available in 1/4" size

Style and Size Inches	MACHINE USED ON	CAPACITY Str. Threads		Std.	Code							-				Standard Shanks†			Max. Shanks Without		Chas-	Net Wt. Std. Shk.	
		Dia.	Lgt.	Coars- est Pitch	Pipe	Word	^	•	C	D	E	r	G	п	,		Dia.	Lgt.	Bore	Bush	ings		for B. & S. Mach.
	00 and 00G-B. & S. Auto, 0-B. & S. Wire Feed & Hand	Via to	11/4	18	None	Lesab Lesac	1%	15/4	23/64	11/12	11/10	11/16	15/4	Max.	1/8	∮ 12-28	34	11/4	Solid	3/6 11/4	15%	4	13 oz.
	Cleveland 5.5.	314				Lesad								Min.	Min.	N.F.	11/4		Solid Solid				

§ Length that can be cut when shank is solid. § Special Shanks furnished at extra cost.

WRITE TODAY FOR FURTHER INFORMATION OR SEE YOUR LOCAL INDUSTRIAL DISTRIBUTOR

GEOMETRIC TOOL COMPANY DIVISION

GREENFIELD TAP AND DIE CORPORATION NEW HAVEN 15, CONNECTICUT From H-VW-M come better methods

new



CADALUME

PLATING PROCESS

Cadmium Plating Costs
Cut With CADALUME.

This new H-VW-M formula:-

- · Eliminates most bright dipping
- Increases brightness range 10%
- Improves distribution in all tanks
- . Speeds plating time by 10%

CADALUME simplifies the cadmium plating process—makes it profitable for job shops and plating plants.

Long-life plus economy is the keynote of CADALUME. Once n new bath is made ready with CADALUME MAKE-UP BRIGHTENER—or an existing bath converted—all plating is done with single-solution, stable CADALUME BRIGHTENER. Keep your cadmium plating costs low. Get all the facts. Write for the New Cadalume Technical Manual—today. Hanson-Van Winkle-Munning Company, Matawan, New Jersey. Offices in principal cities.

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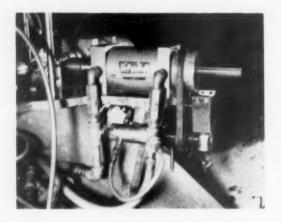
Hanson-Van Winkle-Munning Company, Matawan, New Jersey. Offices in principal cities.

PLATEMANSHIP - Your H-VW-M combination—
of the most modern testing and development laboratory-of over 80 years experience in every phase of plating and
polishing - of a complete equipment,
process and supply line for every need.

For More Information Circle No. 764 on Inquiry Card-Page 17



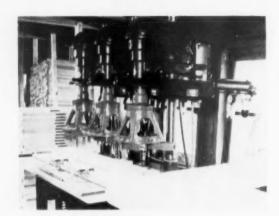
CASE HISTORIES



Costs of Deburring Reduced \$48 per Day

By using four Ingersoll-Rand air motors to power four Hy-Pneu-Mat air feed spindles, one company is deburring pipe threads on the opposite side and ends of valve bodies at the rate of 1200 per hour. The company figures that in comparison with the deburring method previously used, which produced only 180 valves per hour, it is now saving \$6 an hour on labor costs, or \$48 per day. Even more important, the present method eliminates flaking of threads during installation which formerly often caused the valves to malfunction.

CIRCLE NO. 145 ON INQUIRY CARD-PAGE 17



Drilling Time Lowered 86%

A saving of over 86 percent in manhours through efficient use of standard drill press components has been achieved by Boice-Crane Co., for Fabrow Mfg. Co., Toledo. Formerly it took Fabrow 5½ days drilling holes (one at a time) in rails for ventilating sash on picture windows. With the old method, single drill presses were used. Now, the same output is attained in 1½ days by one operater drilling 21 holes simultaneously. Each of three multiple heads with power feed drills seven holes at each stroke

CIRCLE NO. 146 ON INQUIRY CARD-PAGE 17



Solve Difficult Threading Problem

Centering throat chasers enabled the Landmatic head to solve a difficult threading problem at Minneapolis-Honeywell Regulator Co., Valve Div., Philadelphia, Pa. Threads on valve stems for diaphragm control valves were required to meet a concentricity tolerance of .002 in. The 5 HH Landmatic hardened and ground head using centering throat chasers was able to perform this exacting job.

CIRCLE NO. 147 ON INQUIRY CARD-PAGE 17

WHITMAN & B. a complete high speed s

WHITMAN & BARNES END MILLS!

a complete high speed series
featuring "advance-design" construction!

New? Yes sir! Tested and proven? Absolutely!
This complete line of high speed end mills and end mill holders has all the quality and precision craftsmanship that has been associated with the W&B trademark for 109 years!



W& B "Makers of Gine Tools Since 1848"



CHECK THESE "ADVANCE-DESIGN" ADVANTAGES!

- Now flute design, eliminates chip pockets . . provides faster, freer cutting.
- Now type relief . . . stronger cutting edges.
- High stress points eliminated . . . more strength for greater speeds and feeds.

Get full details on these and other "advance design" benefits. Write today for the new Whitman & Barnes End Mill Catalog!

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For More Information Circle No. 765 on Inquiry Card-Page 17



CASE HISTORIES



Reduce Sawing Time 75%

To eliminate error in sawing pieces used for a lock ring on its milling machines, Tree Tool and Die Works, Racine, Wis., has installed a Peerless Speedy-Cut metal sawing machine. Individual cuts which previously took 12 minutes are now made in only 2½ minutes. In addition, squareness of the cuts made by the sawing machine eliminates the discing operations that were previously necessary. A revolving fixture mounted in a cross slide makes it possible to saw any angle in any position.

CIRCLE NO. 148 ON INQUIRY CARD-PAGE 17



Cut-Off Machine Mounting Speeds Cutting 25%

By mounting two Rockwell-Delta cut-off machines on one stand, Reliance Picture Frame Co. is now cutting frame molding 25% faster. The operator moves the molding to an adjustable stop and steps on a foot pedal that brings both blades down simultaneously. When the foot pedal is released, the stop rises with the blades, making it easier for the operator to remove the piece. The waste piece falls into a scrap box below the blades. To get the blades close together and reduce the length of the waste piece between them, Reliance moved blade, belt and pulley of one machine to the left side of the motor.

CIRCLE NO. 150 ON INQUIRY CARD-PAGE 17



Processing Costs Cut 70% by Microhoning

Microhoning of laminated rotor shaft holes in the Emerson electric motor is reducing processing costs of the finishing operation by 70 percent. In addition, rejects have been reduced substantially. Previously, almost all the rotors had to be dynamically balanced which required an extra operation. With Microhoning, however, the amount of correction of balance required is 70% less than what it used to be.

CIRCLE NO. 149 ON INQUIRY CARD-PAGE 17

FOUR WAYS TO IMPROVE YOUR GAGING PROGRAM





HIGH PRECISION LOW FRICTION

Dial Indicators

CUT MAINTENANCE

With fewer parts and interchangeable gear assemblies in No. 25, No. 655 and No. 656 sizes, Starrett Dial Indicators cut maintenance costs. You keep more indicators in service longer with fewer spare parts to stock. The entire gear assembly can be removed as a unit for convenience in servicing.

2 IMPROVE ACCURACY

Simplified design with rugged, rigid construction means Starrett Dial Indicators are less subject to friction and wear. Replaceable low friction jeweled or inserted bronze bearings align accurately to eliminate end play. Rustproof stainless steel gears and tempered pinions, stainless and tempered racks and spindles and heavier bridge and case, all make for lasting accuracy.

3 INCREASE EFFICIENCY

New easy-reading dials, satin chrome exterior finish and contrasting black bezels help operators read faster and more accurately with less eye fatigue. Count hands on long range models read directly in decimals... no calculations.

IMPROVE PERFORMANCE

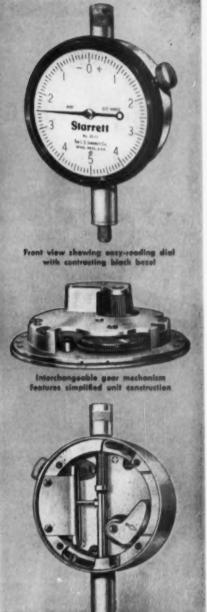
Direct acting springs completely around the spindle or rack eliminate cocking and side friction. Action is smoother, more accurate, with less contact pressure. And with the new Nonshock mechanism to stop shock before it reaches the gear train, Starrett indicators stand up longer even on brutal gaging applications.

SEND THE COUPON for catalog describing the complete line of Starrett
High Precision-Low Friction Dial Indicators.



SINCE 1880 WORLD'S GREATEST TOOLMAKERS

DIAL INDICATORS - STEEL TAPES - PRECISION GEOUND PLAT STOCK HACKSAWS - HOLE SAWS - BAND SAWS - BAND KNIVES



The L. S. STARRETT COMPANY, Dept. p

Athal, Massachusetts

Please send information on Starrett High Precision-Low Friction Dial Indicators.

Name Title

Street and Number

City.....Zone...State.....

We made this pledge

"ATOUSE . . . will give, grant, bargain, sell and convey unto dealers and users . . . Machinist's Tools . . . made of the best quality of steel, of fine finish, and not excelled as to durability and accuracy."

He renews this pledge in 1957... your MFD*

"To Dave And To Dold said tools with all the privileges thereto belonging to their own use and behoof forever. That we have good right to sell and convey the same as aforesaid, and that we will warrant and defend the same to said grantees."

*Your Morse-Franchised Distributor knows that Morse stands behind this warranty just as solidly today as we did 89 years ago. And in his name and behalf, Morse now re-publishes this warranty as an earnest of good faith backing up every Morse Cutting Tool you buy. Yes, you can bank on Morse... and on your Morse-Franchised Distributor.

MORSE TWIST DRILL & MACHINE COMPANY . NEW BEDFORD, MASS.

A Division of VAN NORMAN INDUSTRIES, INC. Warehouses in New York, Chicago, Defroit, Dallas, San Francisco

MORSE

111 1868 The Morse Twist Drill & Machine Company

Know All Men By These Presents

A corporation duly organized under the laws of the Commonwealth of Massachusetts, and doing business at New Bedford, in the County of Bristol in and come calch, in consideration of good and correct coin the catalogue of said company which can be readily obtained upon application will give, grant, bargain, sell and convey unto dealers and users of Machinists. Tools, located in every part of the civilized world, certain tools therematter mentioned made of the est quality of steel, of one finish and not excelled as to durability and

Actions for Drill Charles shell End Male, Shell Reamers. and Face Miring touters, Beach Stelmin and Center Indl Chucks Counterpares Connervouse: Solid and Adjustable Counterbores with the Point Drufts Once, the Point and the Stock Leville, In-Grease To est and Constant Angle Drills : Three and Four Greave. Brills Brills with Groward Shanks; Hollow Drills for deep drilling or long holes Jobbers Drills Letter Drills; Drills with Call Hole- Tapur Square Shaok Brills Wire Deills Caliper, Plug and Ring Twist Drill and Steel Wire Gauges. Mandrels. Metal Slitting Sans Milling Cetters Concase and Concas Cutters Catters for Greening Tape Catters with Radial Greeners Screw Shotting fasters: T Shot Cutters Gang Cutters Sprockes Wheel Consers : Inserlacking Conters Involute Conters Conters for Mare and Bevel Gears. Stocking Cutters for Involute Gears. Adjusta-ble Hollow Md., End Mills. End Mills with center cut. Shell End Mills Cotter Mills Taper Pins, Reamers with Od Holes, Bit Stock Taper Reamers: Shell Reamers, Expanding Shell Reamers, Fluted Chucking Reamers; Rose Chucking Reamers shelf and Rose Shell Reamers with Spiral Flates. Taper Pin Reamers, Bridge Reamers, Locomotive Reamers, Three-Groove micking Reamers. Screw Plates with Dies Shever Suchet-Hachinests Hand Taps, Machine Screw Taps, Not Taps, Patch Both Tape, Pulley Tape Piper Tape; Stay Bolt Tape; Store Both Tape Machines as follows: Bench Centers, Drill Granding, Face Straightening Press,

o Have and Co Hold said tools with all the privileges thereto. belonging to their own use and behoof forever: That we have good right to sell and convey the same as aforesaid, and that we will warrant and defend

In Witness Whereof, We the said Morse Twist Drill & Machine Co., hereunto set our hand and scal this Sixth day of April, A. D.

Morse Twist Drill & Machine Co.

means "THE MO in Cutting Tools



Staking Press Doubles Production



Tubular Rivet & Stud Co., Wallaston, Mass., is getting doubled output since it purchased a 6-ton Denison Multipress with a fully automatic staking operation. The press, equipped with a 12-station Denison index table, produces completed parts at the rate of 52 per minute. Also equipped with automatic hopper feeds and automatic ejection mechanism, the press stops instantly if any misalignment or jamming of parts occurs.

Circle No. 221 on Inquiry Card-Page 17

Assembly Time Reduced 55% on Milling Electric Relays

Precise Power Quills made it possible for Allied Control Company, Inc. to use exceptionally small (.087" diam.) rotary tools with no chatter and no run out. Sizing nylon parts for electrical relay through opposed milling is accomplished by inserting the relay part between two carbide end cutting mills. The relay are milled to close tolerances as fast as the operator can load and unload the fixture, reducing assembly time fifty-five %.

Circle No. 192 on Inquiry Card-Page 17

You Need Only One Card to Request Additional Information on Any Item in This Issue Use the Reader Service Page 17

HOW VALUE ANALYSIS PAID OFF TWICE!

First, to the Purchasing Department . . .



. . . then, in Production.

Value analysis, the science of getting maximum useful return for each investment of time or money, is a basic tool of purchasing men. They are the first to use it, in selecting those suppliers with the greatest potential value to their company. Prompt, thorough solutions to their problems represent savings of purchasing time.

That's why Bay State is chosen so consistently whenever grinding or grinding costs are involved, as in the case history shown on the opposite page. How the Bay State representative carried Value Analysis into the plant to produce cost-reducing, product-improving results, will interest you. It's a typical example of the dependable Bay State ability to bring about maximum value in abrasive product applications.



engineer Pete Wilson developed a radically new "spec" for these extra-hard metals.

A GRINDING PROGRESS REPORT

Extra Fine Grit Silicon Carbide Succeeds In Tough Vasco Supreme I. D. Grinding Job.

Finer grits and "softer" wheels are the usual approach to grinding hard metals. This was not enough, however, on the hardened die steels required at the W. H. Nichols Co., Waltham, Mass. Wheels soft enough to cut, with the limited pressure of internal grinding, were too soft to hold shape.

Recommended: Silicon Carbide grain, for better penetration into these metals of high carbide content, and grits much finer than the normal 90, to take smaller chips but more of them.

Results: Using 240 grit on the Vasco Supreme, and 150 on the Neatro and Ohio Air Die steels brought about both the quality and quantity of production desired. With wheel dressing reduced to 1/8 the amount formerly required, 50 or more pieces are now completed per wheel.

These results are typical of Bay State. You can get them through your local distributor, any branch office, or the Bay State Abrasive Products Co., Westboro, Massachusetts.

Branch offices are located in Bristol, Conn., Chicago, Ill., Cleveland, Ohio, Detroit, Mich., Pittsburgh, Pa., with distributors in all principal cities.



Slender spindle and large contact area limit infeed pressure, making wheel selection critical on hard, abrasion resistant metals.



For More Information Circle No. 768 on Inquiry Card-Page 17



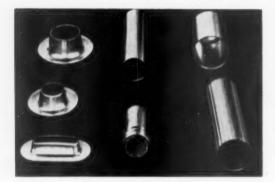
CASE HISTORIES



Carbide Cutting Tools Give Superior Performance

Two problems—frequent resharpening and excessive machine downtime have been solved with cemented carbide cutting tools in a highly abrasive wood machining operation in the band instrument manufacturing plant of H & A Selmer, Inc. Using Carboloy cutting tools the company has found that it is getting a performance ratio of better than 6 to 1 over cutting tools previously used. In addition to turning out a product with fine finishes, the carbide tools have eliminated at least five regrinding operations per tool.

CIRCLE NO. 191 ON INQUIRY CARD-PAGE 17



53% Saving in Pickling And Annealing Costs

Brass and bronze parts anneal and stress-relieve clean in steam atmosphere. Often parts come out clean enough so that additional chemical cleaning is unnecessary. Parts to be plated require only a bright dip to remove the slight discoloration formed during steam treatment. One manufacturer of brass stampings realized a saving of 53% in pickling and annealing costs by the use of clean, steam-atmosphere without scale. For subsequent plating, they do not require pickling, except for a bright dip to remove the thin oxide film.

CIRCLE NO. 222 ON INQUIRY CARD-PAGE 17



Adapting Special Presses Increases Output 50%

The Torrington Manufacturing Company increased production 50% on many parts and doubled it on other parts in the manufacture of fan blades and squirrel cage impellers. They accomplished this by tooling Bliss high production presses into all purpose machines for short and medium runs instead of following the usual practice of considering them as special purpose machines, especially suited to long production runs.

CIRCLE NO. 193 ON INQUIRY CARD-PAGE 17

For More Information Circle No. 769 on Inquiry Card—Page 17→ If your cutters pile up chips as fast as bulldozers pile up earth...

This brand cuts down your cutter usage, production time and costs!



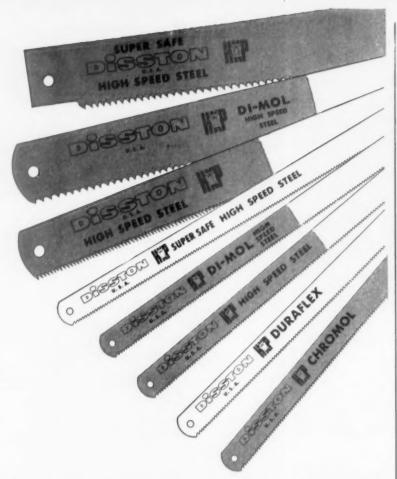


The more cutters you use, the more you need Union

Union manufactures milling cutters, gear cutters, drills, end mills, reamers, hobs and carbide tools. Available nationally through Union Distributors and stocked in Union warehouses in Atlanta, Chicago, Detroit, Fort Worth, Los Angeles, New York City and San Francisco. S. W. CARD DIVISION, Mansfield, Mass.; BUTTERFIELD DIVISION, Derby Line, Vermont.

UNION

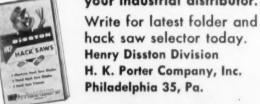
TWIST DRILL COMPANY, Athol, Massachusetts
See Your UNION DISTRIBUTOR for cutting tools that will save you time and money



For easy, economical machine shop cutting use one of these 8 sturdy

DISSTON HACK SAW BLADES

They cut easily...resist wear and breakage. Get them through your industrial distributor.





Henry DISSTON DIVISION

H. K. PORTER COMPANY, INC.

For More Information Circle No. 770 on Inquiry Card-Page 17

Turn Out 1.1 Million Threads With Original Rolls



M & S Morenic Corp. has been using a Landis Thread roll attachment on a 9/16 in. Acme-Gridley Automatic to turn out #10-32 pitch NF threads .350 in. long, rolled on 1020 screw stock. The Lanroll attachment is operated in the fourth position, rolling next to the collet .030 in. back of the shoulder and threads are held to \mp .00025 in. of the pitch diameter. To date, 1.1 million threads have been produced with the original set of dies.

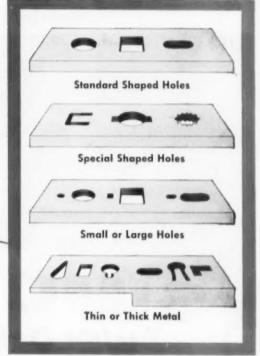
Circle No. 194 on Inquiry Card-Page 17

Unique Drill Press Head More Than Doubles Output

Drilling 5/32 in. holes 3/8 in. deep in tough forged rivets is one of the production operations of the Bradley Washfountain Co. Average production was 125 pieces per hour with very high drill breakage. To solve the problem, the company installed a Dumore special automatic drill-unit with all the operating and control mechanisms built in. A cycle timer and unloading chute were also added. As a result production was boosted to 333 pieces per hour, there was no drill breakage and unit costs were lowered.

Circle No. 195 on Inquiry Card-Page 17

WHEN R-B Punches Are Used



What are your piercing or forming requirements—standard or unusual shapes—small or large holes—steel or special alloys—thin or thick metals? Many hole-making applications, formerly requiring drilling or some other costly means, can now be done with R-B interchangeable punches. If you have thought your piercing jobs too tough for interchangeable punches, it will pay you to investigate the wide application potential of R-B standardized equipment.

No other manufacturer of punches and die buttons can offer you the amount of successful application experience and the scope of knowledge that is available from the R-B engineering staff for:

- * Cutting Your Production Costs
- * Reducing Die Designing Time
- * Increasing Productivity of Presses
- * Supplying Answers to Piercing Problems
- * Saving Die Construction Time
- * Complete Standardization of Press Tooling

For Additional Information or Engineering Service, Write to:



RICHARD BROTHERS PUNCH DIVISION

ALLIED PRODUCTS CORPORATION

DEPT. 86

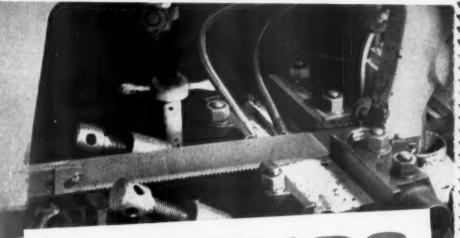
26488 CAPITOL AVENUE

DETROIT 39, MICHIGAN

For More Information Circle No. 771 on Inquiry Card-Page 17

SHATTERPROOF...

for Maximum Safety . . . Yet Rigid Enough to Maintain Straight Cutting!



SINONDS "WELD-EDGE" Power Hacksaw Blade

with The High Speed Steel Cutting Edge

This Simonds-Engineered Blade with its factory-controlled weld is especially designed to meet all plant safety and performance requirements — with real savings in time and cost per cut.

Simonds "Weld-Edge" Hacksaw Blades are *tough* — will not snap in operation regardless of abuse, neglect, machine condition or adjustment. These blades have a High Speed Steel cutting edge that resists wear and is adaptable for all types of cutting.

What's more, "Weld-Edge" Blades have a specially heat treated back that is not only shatterproof but possesses greater rigidity that pays off in straighter cuts and longer life.

For safety, dependability and increased output at lower cost, ask for SIMONDS "Weld-Edge" — the shatterproof blade with the Red End. All standard sizes available from stock.



Factory Branches in Boston, Chicago, San Francisco and Portland, Oregon, Canadian Factory in Montreal, Que., Simonds Divisions:
Simonds Steel Mill, Lockport, Fl. Y., Heller Tool Co., Newcomerstown, Ohio, Simonds Abrasive Co., Phila., Pa., and Arvida. Que., Canadi

PURCHASING AGENTS:



SEE THIS MAN for:

Accurate and Durable Collets, Feed Fingers and Pads with

Prompt Delivery Service and

Attractive Prices

One Source of Supply Means Purchasing Economy

Order From HARDINGE Today

COLLETS-FEED FINGERS-PADS

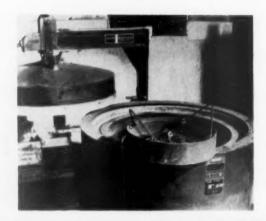
FOR: Brown & Sharpe, Cleveland, Cone, Davenport, Greenlee, Acme Gridley, National Acme, New Britain, Warner & Swasey, Jones and Lamson, Gisholt, Bardons & Oliver, Foster, Morey, Simmons, Ames, Atlas, Cushman, Hendey, LeBlond, Pratt & Whitney, Monarch, Bridgeport, South Bend, Kearney & Trecker, Linley, Van Norman, and others.

Ask for FREE Catalog





CASE HISTORIES



Steam-treated High Speed Cutting Tools Last Longer

Drills, reamers, hobs, milling cutters, and other high speed steel cutting tools on many applications hold their cutting edges 50 to 100% longer when steam-treated following tempering and final grinding. This increase can be as high as six times as long when the tools cut such extra-tough materials as heat-treated alloy structural grades of steel. The results are fewer tools needed and less time required for changing and sharpening them.

CIRCLE NO. 196 ON INQUIRY CARD-PAGE 17



Six \$350 Drill Presses Replace Huge Radial Drill

The United Concrete Pipe Corporation had a problem in disassembly and transportation of heavy bulky material to and from the home shops—the only place where heavy duty drill presses could be housed. Hatten Machinery Company suggested the use of six Bux portable magnetic drills capable of delivery up to 1,850 lbs. of drill bit pressure right at the erection site, and in confined and difficult access areas. The Bux presses (at a cost of about \$350 each) had not only solved the need for on the job precision drilling, but have been brought into the building company's machine shop where they effect savings in material handling.

CIRCLE NO. 197 ON INQUIRY CARD-PAGE 17



35% to 50% Savings from Use of Stud Welded Anchors

Cost savings of from 35 to 50% have resulted from use of stud welded anchors for concrete on structural assemblies fabricated by the Midwest Iron Works, Inc. Besides the savings inherent in split-second welding with the light-weight Nelson stud welding gun, the method provides other advantages that reduce handling costs and move work through the shop much faster. Skilled welders are not required as they would be with hand welding.

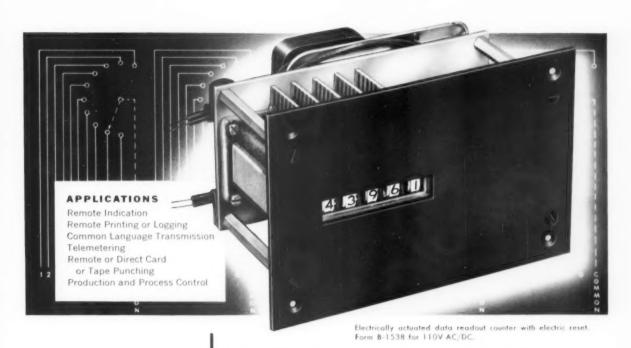
CIRCLE NO. 198 ON INQUIRY CARD-PAGE 17

NEW

Data-Readout Counter

Provides 100,000

Distinct Circuit Arrangements



FUNCTIONS

Analog to Digital Conversion Serial or Parallel Circuit Transmission Continuous or On Demand Electrical Readout Continuous Visual Readout Visual and Electrical Data Storage Predetermining Repeat Predetermining Sequential Programming Veeder-Root's new series of Data Readout Counters combines visual indication with electrical readout for remote indication, recording, and controlling applications. *Electrically* or *mechanically* driven and provided with *manual* or *electric* reset, these counters present a positive display of accumulated totals and automatically create specific control circuit contact closures for each number visually displayed. Each instrument, with its five figure capacity, provides 100,000 distinct circuit arrangements which lend themselves to the most exacting control and transmission requirements. The counters are compatible with standard data processing equipment and offer a wide variety of applications in the industrial control and data processing fields.



Veeder-Root Inc.

"THE NAME THAT COUNTS"

Hartford, Conn. • Greenville, S. C. • Chicago • New York • Los Angeles San Francisco • Montreal • Offices and Agents in Principal Cities

For More Information Circle No. 774 on Inquiry Card-Page 17 For More Information Circle No. 775 on Inquiry Card-Page 17-



10-Ton Pulpstone Chews Up Logs... makes pulp for paper products. Norton made the first mammoth pulpstone in 1926; in 1956 most of the world's groundwood pulp was produced by Norton pulpstones.

From the mammoth to the



Rokide Spray Coatings protect metal surfaces from high temperatures encountered in jets and rockets. ROKIDE* ceramic coatings are another recently patented Norton development.



Tools for Tools. Norton grinding wheels sharpen the tools that make the product. Here a large milling cutter is sharpened by a Norton grinding wheel on a Norton grinding machine.

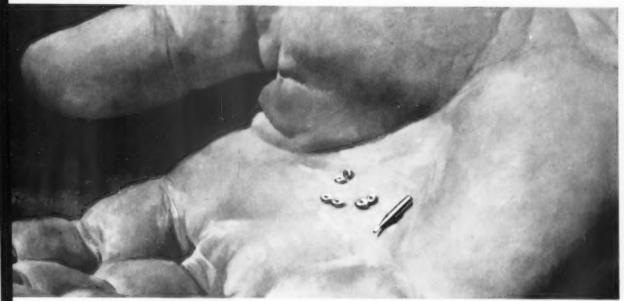


Over 1000 Surfaces in an Automobile require grinding to achieve perfect fit and finish. Norton has been an essential supplier to the automotive industry for over 50 years.



Tumbling Act cuts finishing costs. Here Norton TUMBLEX* abrasive is used for precision tumbling. Norton is a pioneer in modern barrel-finishing materials and techniques.

Making better products...



Tiny Rokide Grinding Wheel finishes ball bearing bore no larger than a pinhole. This spindle-type grinding wheel is only .040" in diameter.

tiny through the busy years

It's surprising how many different kinds of abrasive wheels the world needs.

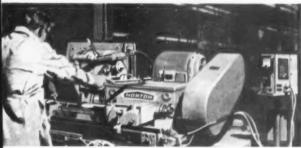
Here one wheel chews logs into pulp—the other polishes holes of pinhole size in miniature bearings. Both are examples of Norton Company's broad scope in supplying abrasives to industry.

Did you know that Norton Company makes more than 200,000 different kinds and sizes of abrasive products and that it has a continuous improvement program for all of them? The mammoth Norton pulpstone was a "first" in 1926, The miniature ROKIDE grinding wheel was a "first" in 1956. Between the two are literally hun-

dreds of "firsts" that helped some one industry or some one manufacturer make an improvement or cost reduction in product or process.

That's why Norton sees its job as "making better products to make your products better."





Machines Obey Men. SWIVALIGN* electronic equipment on many Norton grinding machines automatically sets taper tolerances as dictated by the operators—closer than eyes can see,

Across the world and still expanding

Abrasive and Grinding Wheel Plants — Worcester, Mass., Santa Clara, Calif., Hamilton, Ontario, South Africa, England; France, Germany, Italy, Brazil. Behr-Manning Plants — Coated Abrasives and Behr-eat Tapes — Troy. N. Y.; Canada, Australia, France; Northern Ireland, Argentina, Brazil. Electric Furnace Plants — Huntsville, Alabama, Chippawa, Ontario, Cap-de-la-Madeleine, Quebec; Brazil. Grinding and Lapping Machine Plant — Worcester, Mass. Refractories and Electro-Products Plant — Worcester, Mass. Norton Pike Plant — Sharpening Stones — Lattleton, New Hampshire, Bauxite Mines — Bauxite, Arkansas.

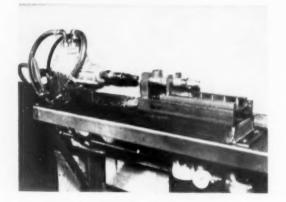
General Offices: Norton Company, Worcoster, Mass.

*Trade-Marks Reg. U. S. Pat. Off. and Foreign Countries

to make your products better



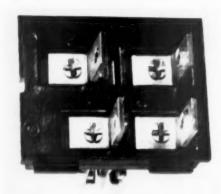
CASE HISTORIES



Air Motor Ups Production 600%

In order to remove solder splashes, a manufacturer of electrical hardware had to retap threaded connectors after they had been soldered to a gasproof flexible conduit. Most tapping machines were too unwieldy or caused cross-threading. An Ingersoll-Rand size 22N air motor, equipped to handle various size taps, was mounted on an eight inch channel and controlled by a small hand valve on the side of the channel. The method reduced worker fatigue, increased production from 60 to 360 units per hour and cut costs from \$2.75 to 0.458¢ per unit.

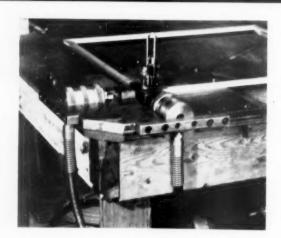
CIRCLE NO. 199 ON INQUIRY CARD-PAGE 17



Accurate Pressure Control Saves Full Minute on Each Unit

Staking terminal lugs on Bakelite terminal boards, four at a time, had always proved a bottleneck at The Haydon Manufacturing Company plant. A major difficulty was lack of accurate pressure control. Installation of an eight-ton Denison Multipress with dial handlever controls solved the problem. The Multipress afforded multiple staking and saved one minute on each assembly, or \$13.42 per thousand. Controlled pressure permitted an untrained operator to start producing uniformly good assemblies the first day.

CIRCLE NO. 200 ON INQUIRY CARD-PAGE 17



Setup Clamps Help Double Production

Airtite Corporation has doubled sash production by automating assembly jigs with Wilton PowRlock Setup Clamps. The assembly jig is used to permanently stake the corners of sash frames. Formerly, the jig was equipped with manually operated, cam-type plungers that had 18 inch extension handles. The operation was not only slow, but was fatiguing and monotonous. PowRlock Clamps were installed horizontally to exert equal force at a 90° angle. This made the jig automatic, the only labor now required is the flick of a switch.

CIRCLE NO. 201 ON INQUIRY CARD-PAGE 17

For Mare Information Circle No. 776 on Inquiry Card—Page 17→

PURCHASING



So rugged we offer free year's service certificate!

Only B&D Impact Wrench has this proof of POWER-BUILT ruggedness

You can't ask for stronger proof of ruggedness than the free full year's service certificate covering the Black & Decker Heavy-Duty Impact Wrench. No other manufacturer dares make this offer—because no other impact wrench runs as cool, lasts as long, performs so well.

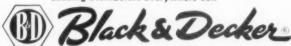
This tool is really *power*-built! Patented armature construction, heavy-duty ball bearings throughout, precision machined, heat-treated impactor and anvil—all are extra tough, extra durable. In tests, we compressed its impactor spring 100 million times—ran the tool continuously for over 600 hours—without signs of failure.

Add faster work and easier handling—and it's a cinch to see why it will pay you to ask your Black & Decker distributor for a *free* demonstration. THE BLACK & DECKER MFG. Co., Dept. 1705, Look Under Look Under Cook-Sustem

Towson 4, Maryland. (In Canada: 80-86 Fleet St., E., Toronto 2, Ontario.)

Look Under "TOOLS ALECTRIC" in 'Yellow Pages'

Leading Distributors Everywhere Sell



Portable Electric Tools-Power-Built to set the pace







SANDERS



FASTER! B & D Impact Wrench hits max torque in 6 seconds, twice as fast as competitive tools.

REVERSIBLE! Full power in either direction. Reversing ring design prevents accidental starting.



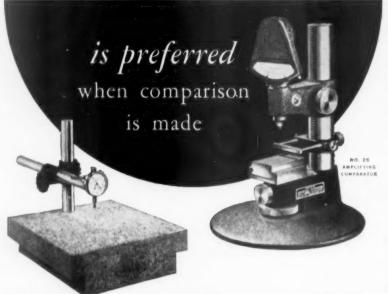
EASIER HANDLING! Handle positioned to eliminate nose or tail heaviness. No starting twist.

HANDY KIT! Saves time on the job. Protects tool and equipment, prevents loss, everything handy.





AMES



MODEL 130 GP.



For fast, accurate measurements, Ames Dial Comparators are the choice of quality control men everywhere. You get definite, impersonal readings directly from the dial. There's no guesswork or figuring.

Special comparators are available for measuring resilient materials such as rubber, paper, etc., and for measuring non-yielding materials such as sheet metal, glass and plastic. Write for complete details.

Representatives in principal cities



B.C. AMES CO.

31 Ames Street, Waltham 54, Mass.

MANUFACTURERS OF MICROMETER DIAL GAUGES • MICROMETER DIAL INDICATORS

For More Information Circle No. 777 on Inquiry Card—Page 17

Steam Treatment Cuts Buffing Costs 40%



Solution treatment of aluminum alloys in steam gives a more uniform, more reflective surface as compared to the duller, heavy matte coating obtained in air. This means lower finishing costs on parts to be polished. One manufacturer of aluminum clutch arms saved up to 40% of the cost of subsequent buffing operations by the adoption of steam atmosphere treatment.

Circle No. 202 on Inquiry Card-Page 17

Airless Abrasive Blasting Brings 25% Cost Cut



In producing bonding surfaces on metals for black oxidizing, nickel plating and chromium plating, National Brass Co. has found that airless abrasive blasting cuts costs 25 percent. A Wheelabrator Tumblast airless abrasive blast cleaner cleans 350 pieces in 15 minutes. With manual airblasting, it took 5-6 hours to do the same amount of work. In addition, 300 to 2000 stampings which formerly took 3-4 hours to clean are now handled in 10 minutes.

Circle No. 203 on Inquiry Card-Page 17

P

Heller nucut®

LONG ANGLE

LATHE

gives smoothest finish ... stays sharp longer!

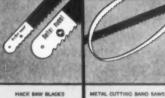
Look at the long 45° angle of those super-sharp precision-cut teeth. It means greater shearing action for removing metal faster and with less pressure without clogging. The long angle provides a self-cleaning action—new chips clear out the old. This special-purpose file is cut from a heavy blank for extra strength and better results on lathe work. Both edges are "safe" to protect work shoulders. It can be used to give the right finishing touch to both hard and soft metals.

You can depend on Heller Nucut Long Angle Lathe Files to speed work and cut costs. A trial is the best convincer.

SOLD EXCLUSIVELY THROUGH



Heller "Tob Tempered" Tools





FLAT GROUND DIE STEEL

A job-proved Heller product!

HOLLER for HELLER ...and be SATISFIED!

CHOOSE THE RIGHT FILE FOR THE JOB! Heller research and over a century of manufacturing experience have been responsible for many of the most practical file developments in the field today. That's why you'll find the right files for your jobs among the thousands of types, sizes, shapes, and cuts that make up the Heller AMERICAN PATTERN, SWISS PATTERN, VIXEN, and ROTARY FILE lines.

GET LONGER FILE LIFE! All Heller Files are "Job Tempered" by a unique combination of metallurgical and hardening techniques. That's why Heller files cut faster and last longer . . . are favored by filers everywhere!

MORE ON-THE-JOB HELP!

Heller's Representatives . . . backed by more than 100 years' problem-solving experience . . . are best equipped to fit the right files to new designs and materials. This valuable technical service is yours for the asking . . . through your nearby Heller distributor.

Heller Tool Go.

America's Oldest File Manufacturer
NEWCOMERSTOWN, OHIO
Subsidiary of Simonds Saw and Steel Co.



MODEL 1200

A rugged, horizontal band saw for heavy duty production cutting, with a completely automatic cutting cycle. Capacity: 12" x 16". Wet cutting standard.



MODEL 1000

Big capacity production saw, using 1" blades for greater accuracy and efficiency. Capacity: 10" x 16". Shown with optional wet cutting system. No. 8 and Model 600 are similar.



MODEL 49-A

Dual purpose economy band saw shown as a horizontal cut-off machine. Raise cutting head to upright position—it's a vertical band saw. Capacity: 31/2" x 6"



ROTO-VEYOR BAR FEED

Designed specifically for Model 1200. All feed rollers powered. Not shown is the Wells-O-Bar Feed Master, available for Model 1000, No. 8 and other pivoted type machines.

WELLS-QUALITY CUT-OFF SAWS

. . . designed and engineered for the "VALUE BUYER"

Take a good long look at value . . . it's an important factor in the fight to stem rising costs.

For over 30 years, Wells Manufacturing Corp. has engineered into every horizontal metal cutting band saw, a combination of practical value features designed to give you the most for each dollar you spend. Extra rigid, heavy duty construction; "constant load" blade tensioning; safety switches with overload protection . . . these are just a few of the value-packed features that help you do a better cutting job at a lower unit cost.

Put Wells to the test . . . compare them with other makes . . . it's the best way to satisfy yourself of their OUTSTANDING PERFORMANCE and BIG VALUE.

Ask your Wells Distributor for full information and assistance.

	Model 1200	Model 1000	No. 8	Model 600	Model 49-A
Capacity, Rectangular	12" x 16"	10" x 16"	8" x 16"	6" x 13"	31/2" × 6"
Capacity, Rounds	121/4"	10"	8"	63/4"	31/2"
Speeds, Ft. Per Minute	60, 115	50, 100	50, 100	50, 90	54, 100
	200, 300	175, 275	175, 275	160, 250	190
Motor Size	1 H.P.	1/4 H.P.	1/2 H.P.	V2 H.P.	1/4 H.P.
Blade Size	1" x 13'6"	1" x 11'6"	3/4" x 11'6"	%" x 8'21/2"	1/2" x 5'
Height to Top of Bed	241/4"	251/2"	251/2"	251/2"	24"
Floor Space	44" x 78"	24" x 72"	24" x 72"	21" x 50"	161/2" x 38"
Shipping Wt. (Approx.)	1950 Lbs.	705 Lbs.	650 Lbs.	425 Lbs.	145 Lbs.



The Pioneers of Horizontal

METAL CUTTING BAND SAWS

WELLS MANUFACTURING CORPORATION

2400 JACKSON AVE., THREE RIVERS, MICHIGAN

For More Information Circle No. 779 on Inquiry Card-Page17

Increased Production at Lower Cost



Modine Mfg. Co. has been using a Peerless saw in the manufacture of its cabinet unit heaters. Shafting is purchased in 132 in. lengths, finish ground. Formerly these shafts had to be sent to a vendor who cut them to 32 15/16 in. lengths and chamfered each end. Now the material can be shipped directly to Modine, eliminating the inconvenience and expense of depending on an outside source. Modine estimates that the actual cost of cutting a single shaft is 21/2 mills for labor and 11/2 mills for depreciation, or a total of 4 mills per shaft.

Circle No. 204 on Inquiry Card-Page 17

Labor Costs Reduced With High Speed Steel Quill

Glenbard Tool Company saved one-third of its labor cost on setup time for trepanning stainless steel by use of a Precise power quill with a variable speed control. Made of high speed steel, the power quills provide Glenbard with more tooling versatility and less special equipment than was formerly possible. Closer tolerances are also possible because of the extra speed and horsepower obtainable.

Circle No. 205 on Inquiry Card-Page 17

FOR MORE INFORMATION
ON PRODUCTS IN
THIS ISSUE
USE INQUIRY CARD
PAGE 17



Operators know Card taps are action-mated precision performers — for example, on materials like cast iron, brass, stainless steel, aluminum and magnesium. That's because these top-quality tools are always available with different cutting angles and surface treatments — at standard prices. S. W. CARD DIVISION, Mansfield, Mass. Card Warehouses: Atlanta, Chicago, Detroit, Fort Worth, Los Angeles, New York, San Francisco.

CARD

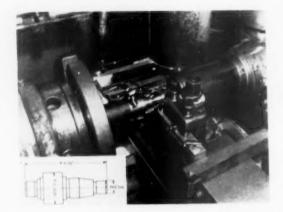
DIVISION OF UNION TWIST DRILL COMPANY

Serving you through fine distributors from Coast to Coast

For More Information Circle No. 780 on Inquiry Card-Page 17



CASE HISTORIES



Tool Costs Reduced Almost 15% By Use of Throwaway Inserts

The American Pulley Company cut tool costs to approximately one-seventh with throw-away insert tools which replaced vertically-clamped prismatic type carbide insert tools of various grades. Production of pinions, which are turned out of a bar of SAE 4140 chrome-moly steel of 212 Brinell hardness, consists of turning the various diameters on both ends of the work piece at .0138" feed, ½" maximum depth of cut and at 720 rpm and 303 max. SFM.

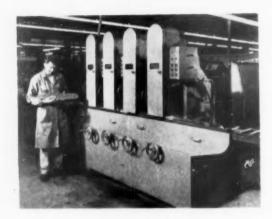
CIRCLE NO. 206 ON INQUIRY CARD-PAGE 17



Plate Clamp Ends Waste in Fitting Up

With the use of a Bux portable magnetic plate clamp, the Moore Dry Dock Company of Oakland, California has been able to completely eliminate wedges, dogs and other timewasting steps in fitting up. The plates are just positioned and held with the Bux and tack welded. Another big saving results from the reduction in clean up time after the welding job is done—no deburring or cutting off clips is necessary.

CIRCLE NO. 207 ON INQUIRY CARD-PAGE 17



Grinding Equipment Does Job For 75% Less

In four head grinding sequence, an Engleberg grinder removes a total of .005" from tool steel chain saw bars at rate of ten feet per minute, to a tolerance of .001" T.I.R. One set of aluminum oxide abrasive belts grinds over 2500 feet of stock—over 200 pounds of tool steel per set of belts. Initial equipment expenditure for four-head model was 25% of that for other machine installations considered by user.

CIRCLE NO. 208 ON INQUIRY CARD-PAGE 17

For More Information Circle No. 781 on Inquiry Card—Page 17→ PURCHASING

Service for you SIMONDS LADELPHIA P



from your

SIMONDS INDUSTRIAL DISTRIBUTOR

Products Grinding wheels, mounted wheels, abrasive segments, abrasive grain...for efficient, low cost performance! Your Simonds distributor is a "single" supply source for all.

Deliveries Speedy supply from complete 'local' stocks. Instant net price quotation on any quantity of Simonds wheels. Your Simonds distributor is as near as your phone.

Quality Established, proven product quality! This is the basis on which your distributor selects all his stocks . . . and the reason why your Simonds distributor offers you service that saves.

SIMONDS ABRASIVE COMPANY

Tacony & Fraley Sts., Philadelphia 37, Pa. DIVISION OF SIMONDS SAW AND STEEL CO.

BRANCHES: PHILADELPHIA . CHICAGO . DETROIT . LOS ANGELES SAN FRANCISCO . PORTLAND, ORE.



The world's most accurate

Now distributed in the United States and Canada by Jacobs and your Jacobs chuck distributors

The Albrecht Heavy Duty Drill Chuck

- Keyless construction
- Excellent gripping power
- Self tightening smooth release
- Very high accuracy
- Drill breakage minimized
- For tool room and the production line

The Albrecht Heavy Duty Drill Chuck is available in 11 taper back models in capacities up to %". This is a keyless, self-tightening chuck of exacting accuracy.



The Albrecht Small Drill Chuck Model No. 15 JO



Model 15 IO is especially designed for small diameter drills. It has a maximum capacity of 1/16" and a minimum well under the No. 80 drill. Like the heavy duty models, No. 15 IO is keyless, and self tightening.

The superlative performance of this precision chuck is now available to you through your Jacobs industrial supply distributor. He is backed up by replacement parts stocked in the United States, plus the finest service facilities anywhere.

Call your Jacobs industrial supply distributor for full details and your copy of the new Albrecht catalog.

keyless drill chuck



Close tolerance drilling easily accomplished on a tool room milling machine.



Get the finest performance from your jig barer with the world's most accurate keyless drill chuck.

Albrecht Chucks are ideal on milling machines and jig borers



The Albrecht Keyless Chuck is ideal for use on high speed sensitive drilling machines.



The Albrecht Small Chuck, Model 15 JO, is the finest keyless chuck available for accurate drilling of the smallest holes.

Close tolerance drilling on high speed drill presses

Jacobs CHUCKS

The Jacobs Manufacturing Co. • West Hartford, Connecticut
For More Information Circle No. 782 on Inquiry Card—Page 17

Jamproof 65R

Now Guarantees Straight Threads Every Time



Revolutionary new
TC (True-Centering) Workholder
centers all pipe, even over or under size

No more crooked threads! 65R pre-sets to size by turn of TC workholder gauge ring—tightens by palm-of-hand push on forged cam lever. All 3 jaws close together on pipe by one mechanical action.

Straight threads, drip threads if desired, jamproof, 1" to 2" with 1 set of dies, fast size change—only 65R offers you so much for your money. Buy it at your Supply House.

P. S. The new TC workholder fits your present 65R!

The Ridge Tool Company, Elyria, Ohio, U.S.A.



For More Information Circle No. 783 on Inquiry Card-Page 17

Press Permits Switch From Casting to Stamping



Recently a company received an order for 500 machine bases. Bases of this type had previously been made as castings. However, by using a Falstrom designed stamping and Falstrom's stock of custom dies, the company was able to get the bases 40% cheaper and delivery was much quicker than if the bases had been cast. Typical of Falstrom's fabrication equipment is the 260-ton press shown here.

Circle No. 209 on Inquiry Card-Page 17

Use of Throw-Away Insert Tool Reduces Costs



Use of a Wesson micro-adjustable throw-away insert tool reduced operating costs at Chrysler Corp.'s Indianapolis transmission plant. In turning the OD of planet pinion carrier housings on Bullard vertical turret lathes it was formerly necessary to reset the tool by gage every time it was sharpened to compensate for reduced length. Use of the Wesson tool with Wessonmetal GI inserts eliminated the difficulty. Tool costs dropped as much as \$4.04 per 1000 pieces.

Circle No. 210 on Inquiry Card-Page 17



Markal PAINTSTIK MARKERS

PERMANENT . FADE-PROOF . WEATHERPROOF

Marks made years ago with Markal Paintstik Markers still are legible after continual exposure to the elements. Use of these Paintstik Markers has paid off by eliminating confusion and the need for remarking raw materials and finished products. Paintstiks created for marking on extremely hot metal surfaces up to 2100°F. make marks that do not peel, fade or char. Likewise, markings made with Paintstiks for cold surface marking stay legible under the most adverse weather conditions for any length of time.

Write your marking requirements on your letterhead.

A free sample of the Paintstik you need will be sent.

MARKAL COMPANY 3111 West Carroll Avenue • Chicago 12, Illinois

For More Information Circle No. 784 on Inquiry Card-Page 17



Cost Cutting Catalogs

All Types of Saws

A 20-page booklet lists saws for a wide variety of purposes. Included are hack saw blades (hand and power), band saw blades, and hole saws. In addition, various sizes of oil hardening and air hardening ground flat stock are listed.

American Saw & Mfg. Co.

Circle No. 211 on Inquiry Card-Page 17

Bar Feed Cuts Down Time

An automatic bar feed that guarantees production increase of at least 20-30% is described in a 6-page bulletin. The bar feed is "automatic magazine loading" so there's no need to stop operations while more stock is readied for the machine.

Lipe-Rollway Corporation

Circle No. 212 on Inquiry Card-Page 17

Cutting Drilling Time

"Drama in Drilling" is a booklet that is designed to illustrate the advantages of turret drilling. The case history technique is used. Nine examples of successful turret drilling applications are shown. Production rates are two to five times better than with conventional methods.

Howe & Fant

Circle No. 213 on Inquiry Card-Page 17

Electric Tools Speed Output

Catalog 56, "Electric Tools for Industry," describes a wide variety of portable electric tools and tool bits. Included are bits, cutters, drills, grinders, planes, routers, hammers, groovers, sanders, saws, shapers, templets, unishears, and a broad line of accessories.

Stanley Electric Tools

Circle No. 214 on Inquiry Card-Page 17

Microhoning for Close Tolerances

Microhoning is a "production method of attaining high precision." The process is outlined clearly and concisely in a 32-page "Microhoning Service and Equipment Catalog." Models of machines for various microhoning are listed. Photos of parts each type of machine will handle are included.

Micromatic Hone Corporation

Circle No. 215 on Inquiry Card-Page 17

Portable Electric Tools

A 32-page catalog describes 69 portable electric tools and kits with over 400 accessories for industrial maintenance men and others. Included are over 150 pictures of tools and their uses with complete specifications for electric saws, sanders, drills, planes, routers, shapers, combination tools,

Porter Cable Machine Co.

Circle No. 216 on Inquiry Card-Page 17

Power Tools for Production, Maintenance

Catalog No. 57 describes in its 51 pages a wide variety of tools for shop and maintenance use. Machines are portable type, intermediate capacity, and are designed for cutting, shaping, drilling, and finishing wood, fiber board, and also metal and plastics.

Boice-Crane Co.

Circle No. 217 on Inquiry Card-Page 17

Reducing Finishing Cost

Bulletin 451-D is entitled "40 Precision Finishing Operations—Where You Can Cut Costs." It shows how savings can be made in precision finishing cost through the use of Liquamatte wet blasting. Hand finishes can be achieved mechanically at low cost in a wide variety of production processes.

Wheelabrator Corp.

Circle No. 218 on Inquiry Card-Page 17

Speed Reducers for Better Control

A complete line of shaft-mounted speed reducers is described in Bulletin A-637A. Included is information on sizes and types for almost every application and recommended v-belt drives for various reducers.

Dodge Manufacturing Corp.

Circle No. 219 on Inquiry Card-Page 17

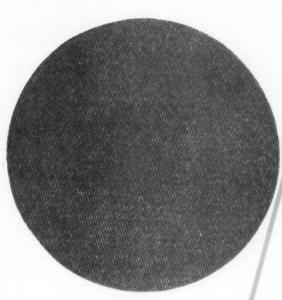
Thread Cutting Tools and Gages

Illustrated 124-page Catalog 57 gives complete data on wide selection of thread cutting tools and gages. Individual sections cover taps, dies, gages, screw plates, and miscellaneous tools. Tables, terms and definitions are listed in a special section.

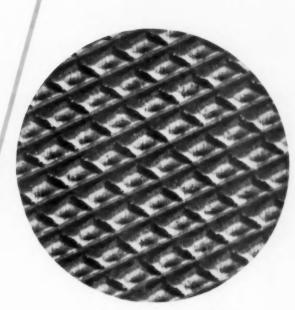
Greenfield Tap and Die Corporation

Circle No. 220 on Inquiry Card-Page 17

For the finest jobs ... or the roughest jobs



Tooth pattern of Nicholson-made Swiss Pattern Square Handle Needle file, Cut No. 6, magnified approximately five times.



Tooth pattern of Nicholson-made 18 inch Flat Bastard file magnified approximately five times.

There is a Nicholson and Black Diamond file for every purpose



Examine these close-ups carefully. They show several important points.

First, they indicate that Nicholson-made files are available in the widest spectrum of cuts. The cross section at left is magnified from our X.F. (Extra Fine) Swiss Pattern Square Handle Needle file, Cut No. 6, the finest cut we make. Our X.F. files are primarily finishing tools, used by tool and die makers, delicate instrument parts finishers and jewelers. And there are seven separate degrees of fineness instead of the three

usually found in conventional American pattern files.

The section at right is from our 13-inch Flat Bastard file. This rugged tool is used by machinists, ship and engine builders, repair men—any worker who wants to take off a lot of metal in a little time.

And notice the uniform tooth structure of both the fine Swiss Pattern cut and the big Flat Bastard. Fine Nicholson workmanship means top results for you. Your dependable Industrial Distributor has the Nicholson or Black Diamond files you need.



NICHOLSON FILE COMPANY, PROVIDENCE, RHODE ISLAND

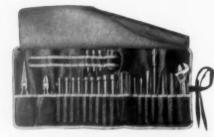
Un Canada Nicholson File Company of Canada Ltd. Port Hone, Ontario



NICHOLSON FILE COMPANY

World's foremost manufacturer of A FILE FOR EVERY PURPOSE

For More Information Circle No. 785 on Inquiry Card-Page 17



"99" TOOLS

cover the full range of electronic servicing - 3 popular "99" roll kits - the 26 individual "99" tools shown plus distributor backup stock





New! No. 99 S.M. Kit - 21 tools



Toolmanship ... Preferred by All Hands!

From individual screwdrivers, nut drivers and pliers to the big new No. 99 SM Service Master Kit, there's a bonus of craftsmanship and imagination that makes every XCELITE hand tool "preferred by the experts."

Besides its regular popular line, XCELITE brings you a continual supply of new and original tools — the new No. 99-X10 Snap-in Shaft Extension — reamers with the T-handle leverage feature - pocket clip nut drivers and screwdrivers - adjustable wrenches and "specialpurpose" pliers.



SERIES "99" TOOLS







No. 99-6 3/16" Nut Driver

1/4" Nut Driver

No. 99-9 9/32" Nut Driver

-3-No. 99-10 5/16" Nut Driver

No. 99-11 11/32" Nut Driver

===

No. 99-12 3/8" Nut Driver

No. 99-14 7/16" Nut Driver

No. 99-16 1/2" Nut Driver

No. 99-81 3/16" & 9/32" Slotted, Reversible

#1 & #2 Phillips, Reversible

3/16" & 9/32" Frearson, Reversible

No. 99-84 3/16" Clutch "G," Reversible

#1 Phillips

No. 99-822

Reamer (1/8"-3/8")

No. 99-39

No. 99X10

INCORPORATED XCELITE,

ORCHARD PARK NEW YORK

Lockable Wall Kit

7 Color Coded
Nutdrivers



School-desk standard assemblies are sigma spot-welded in a turn jig at the rate of 2 a minute.





In this highly efficient production setup, twelve clean, sound sigma spot-welds are made per steel desk standard in less than 15 seconds . . .

versatile and fast—Sigma spot-welding machines make top quality spot, plug, and tack welds on tubes, brackets, ducts, tanks, vehicle and machinery parts—and literally hundreds of other assemblies. Blanketed by a shield of inert argon gas, each weld is clean and sound requiring little or no weld finishing.

rugged and simple—Sigma spot-welding machines are ruggedly built for multi-shift production—and they are amazingly simple to operate and maintain. Get more information about the sigma spot-welding machine designed for your specific production needs. Call your local LINDE representative today, or write for free illustrated literature on sigma spot-welding.

Linde Air Products Company

A Division of Union Carbide and Carbon Corporation

30 East 42nd Street New York 17, N. Y.

Offices in Other Principal Cities

In Canada: LINDE AIR PRODUCTS COMPANY
Division of Union Carbide Canada Limited, Toronto

Linde

The term "Linde" is a registered trade-mark of Union Carbide and Carbon Corporation.

For More Information Circle No. 787 on Inquiry Card-Page 17

Purchasing Agents Find Michigan Abrasives Increase Pieces-Per-Belt 30% OR MORE!



FACTS FROM TYPICAL MICHIGAN ON-THE-JOB FILE:

OPERATION: Backstand grinding-finishing die cast auto-trim parts.

FORMER BELT: Resin bond, 180 grit - 150 pieces per belt.

MICHIGAN BELT: RED COAT Resin bond, 180 grit - 250 pieces per belt.

662/3% more pieces and nothing was changed but the belt!

Yes, it may be hard to believe but, it's true! And, as a purchasing agent, you know nothing puts more value into sales dollars than a major cut in costs. That's why sound purchasing is more important today than ever before. Now, more and more people who thought they were getting peak production are being amazed at the additional production they get from Michigan Abrasive RID COAT resin belts, discs and sheets.

If you think you are buying maximum production and life with your present coated abrasives, you owe it to yourself to test Michigan RED COAT Brand products in your operation. Only then will you know that your grinding and finishing costs are at rock bottom.

Michigan Abrasive is the fastest growing manufacturer of coated abrasives in the country . . . and no wonder! The proof is in all-around outstanding *performance*. Michigan can't be matched in quality, line, delivery or price.

See for yourself how RED COAT, the sharper cutting, cleaner cutting, smoother finishing brand of coated abrasives can save money for you. Send for our free, complete catalog and indicate on coupon if you want our representative to call you for an appointment. Do it soon. You'll be glad you did!

Michigan

ABRASIVES

For More Information Circle No. 788 on Inquiry Card-Page 17



Case Histories
of
Value Analysis
in

Electrical Equipment



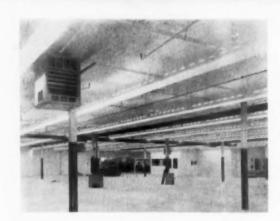
CASE HISTORIES



Silicone Insulation Ends Breakdowns, Saves \$7,000

A Philadelphia water pumping station uses 2300 volt, 500 hp motors to drive its centrifugal pumps. Controlled by oil-filled circuit breakers, the coils (insulated with organic materials) had an average life of three months. Electric Apparatus & Repair Company rewound the coils with Class H insulation made with Dow Corning silicones. Since changing to silicone insulated coils, the department has not experienced a single failure and the average life is already 24 times greater and the savings amount to more than \$7,000.

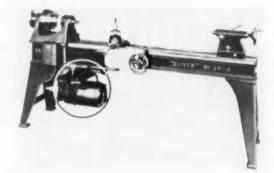
CIRCLE NO. 237 ON INQUIRY CARD-PAGE 17



Improved Fixture Design Boosts Light Output 12%

Good lighting is a prime consideration in the precision work carried out at the Western Branch plant of the Stratos Division of Fairchild Engine & Airplane Corp. in Los Angeles. It, therefore, has installed a fluorescent lighting system designed by Globe Lighting Products, Inc. The result is an illumination level of 60 foot candles at the working plane. More importantly, 12% of total lamp output, normally "trapped" between the fluorescent lamp and reflector head, escapes through slots to light the ceiling.

CIRCLE NO. 224 ON INQUIRY CARD-PAGE 17



Boost Speed Range of Lathe At a Saving of 50%

Before the adoption of Lima Gearshift Drives as a component part of the Oliver No. 20-A Patternmakers Lathe, The Oliver Machinery Company used a two-speed motor and two-speed controls to power the lathe. Now, the lathes are powered by Type R3 Selective four-speed constant-horsepower Lima Gearshift Drives. These drives are belted to the four-step cone pulley on the lathe which makes possible sixteen rapid speed changes—a 100% increase in speed range. The present drive costs approximately 50% less than the two-speed motor and control equipment formerly used.

CIRCLE NO. 225 ON INQUIRY CARD-PAGE 17

Salt Bath Carburizing Saves \$2,800 a Year

Foster Machine Company is saving over \$2,800 a year through use of internally-heated electrode type salt baths. The salt baths, manufactured by Ajax Electric Company replaced externally-heated, oil-fired furnaces for carburizing textile machine parts. Disjortion, formerly a problem, has been greatly reduced through use of the salt bath treatment.

CIRCLE NO. 226 ON INQUIRY CARD-PAGE 17



Light-weight Motor Increases Horsepower by 50%

The Magna Power Tool Corporation needed a smaller, more powerful motor for their redesigned Shopsmith. The General Electric motor which was four pounds lighter and three-fourths of an inch smaller in diameter gave the company a 50% increase in horsepower over the motor formerly used on the old design. In addition, the assembly features of the motor increased Shopsmith production by 30%.

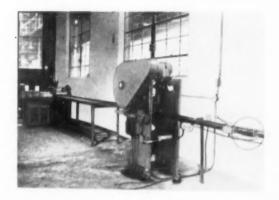
CIRCLE NO. 227 ON INQUIRY CARD-PAGE 17

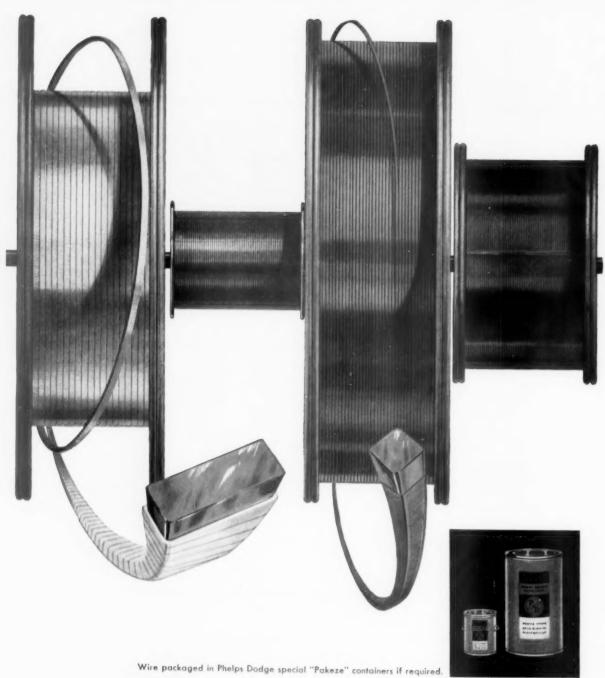


Switch Saves 50% in Labor, Speeds Production 15%

By using one Micro Switch precision limit switch, one man controls the entire operation of a combination roller-leveling and cut-to-length machine assembly at Eastern Brass and Copper Company, Inc. The switch is preset to cut the flattened stock to proper length after it comes from the roller-leveler. Before, one man hand-fed and operated the cutter while another signalled the proper length and unloaded the cut pieces. Now, the machine runs continuously, and the one operator's only function is loading the cut pieces into a shipping cradle.

CIRCLE NO. 228 ON INQUIRY CARD-PAGE 17





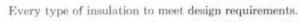
First for Lasting Quality—from Mine to Market!

*Trademark applied for,



If it Calls for MAGNET WIRE—Call on PHELPS DODGE for

INDUSTRY'S MOST COMPLETE, MOST UP-TO-DATE LINE!



Enamel • Formvar • Sodereze* • Bondeze* • Thermaleze* • Grip-eze* Daglas* • Silicone • Paper • Cotton • Multiple Combinations

Available in all sizes and shapes—round, square, rectangular.

Over 400 different types!

Special emphasis on research and development—your assurance of the latest advances in magnet wire.

Vast background of application engineering experience to help solve your problems.



PHELPS DODGE COPPER PRODUCTS CORPORATION

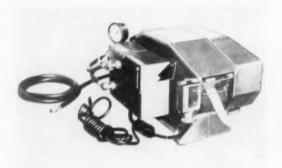
INCA MANUFACTURING DIVISION

FORT WAYNE, INDIANA

For More Information Circle No. 789 on Inquiry Card-Page 17



CASE HISTORIES



Switch Saves 57% in Labor and 10% in Material

Air Fixtures, Inc. saved by using precision switch equipped automatic tape dispensers instead of manually-operated dispensers. It was found that automatic dispensers reduce labor by 57% while saving 10% in tape. The Micro Switch precision snap-action switch automatically sets in motion the next delivery cycle after the operator removes a piece of tape. This frees the operator from manually operating a layer and enables him to do other productive work while tape is being delivered.

CIRCLE NO. 229 ON INQUIRY CARD-PAGE 17



No Service Problems in Motorized File Systems

Wheeldex & Simpla Products, Inc. has standardized on Bodine motors for all of their motorized file systems. The unbalanced loads, amounting at times to an estimated additional force of 140 oz. ft., and an unusually high number of starts and stops put heavy strains on motors. However, no signs of motor failure have been evidenced and there have been no service or maintenance problems, whatsoever, over long periods of time.

CIRCLE NO. 230 ON INQUIRY CARD-PAGE 17



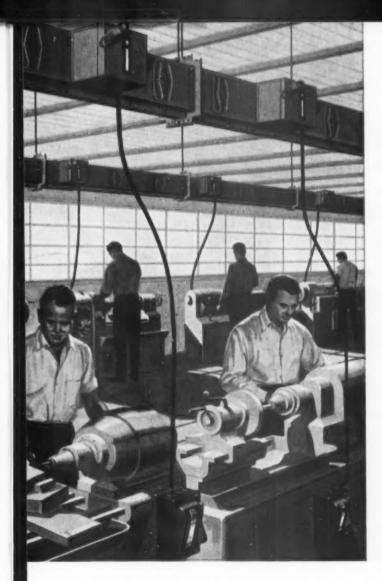
Salt Bath Furnace Speeds Coloring Process

The Acme Chain Corporation is using an unusual and economical process for coloring of roller chain components. The mechanism consists of a 60KW salt bath furnace supplied by Ajax Electric Company and a loading hopper, chain drive, motors and speed reducers. Production of colored parts has been upped 130% with this process, and the rework rate has been cut from 5% to none.

CIRCLE NO. 231 ON INQUIRY CARD-PAGE 17

For More Information Circle No. 790 on Inquiry Card—Page 17→

PURCHASING





Standardized plugs are inserted easily, securely and safely at conveniently spaced plug-in openings—one plug-in opening to every foot of duct. Reinforced fingers insure positive pressure contact. Seven types of plugs are available.



Your BullDog field engineer will be most happy to give you complete details on Plug-in Duct, Lo-X[®] Duct and the many other BullDog products. You'll find his electrical know-how very helpful whether you plan a new system or intend to expand or modernize existing facilities.

Plug in new circuits - cut expansion costs!

Stepped-up production usually demands extra power—but advance planning keeps expansion costs right in line. With a BullDog distribution system, new circuits to serve increasing demands are as close as BullDog Plug-in Duct. You simply plug in extra power when and where you need it—make a safe, convenient connection in minutes, without even interrupting the flow of current! There's no downtime for rewiring, no waiting for the power you need!

See your electrical contractor or the BullDog field engineer—learn how a co-ordinated BullDog distribution system, from safety switches to unit substations, provides full efficiency, safety and the flexibility that means economical expansion.

BullDag Electric Products Company, Detroit 32, Michigan A Division of I-T-E Circuit Breaker Company Export Division: 13 East 40th St., New York 16, New York. In Canada: BullDag Electric Products Company (Canada), Ltd., 80 Clayson Rd., Torento 15, Onterio.



IF IT'S NEW... IF IT'S DIFFERENT... IF IT'S BETTER... IT'S

BULLDOG

ELECTRIC PRODUCTS COMPANY
A DIVISION OF 1-T-E CIRCUIT BREAKER COMPANY



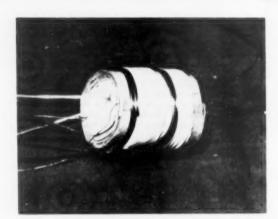
CASE HISTORIES



New Motor Cuts Manufacturing Costs

The accurately cast end frames of a new General Electric motor permitted the Triangle Manufacturing Company to mount a new laundry-utility pump directly on washing machines through bolts—eliminating a mounting casting, several fittings, and a lot of machining. With fewer parts, each man assembles more units per day—with less fatigue. Savings on manufacturing costs and shipping amounted to 15%.

CIRCLE NO. 232 ON INQUIRY CARD-PAGE 17



Tape Insulation Permits 30% Reduction in Transformer Weight

Goslin Corporation reports that the high dielectric strength and high heat resistance of Teflon tape insulation permitted it to produce a 42,000 volt transformer weighing only four-teen pounds. A twenty pound minimum weight was required using other insulation. In the case of a smaller transformer, the weight was reduced from eleven to three pounds. The heat resistance of the tape greatly assists the miniaturization since smaller transformers have higher temperature rises.

CIRCLE NO. 233 ON INQUIRY CARD-PAGE 17

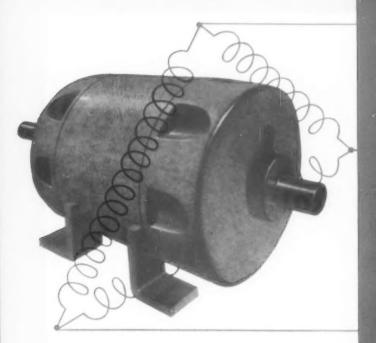


Circuit Analyzer Reduces Testing Time from 2 Hours to 10 Minutes

At T. W. A.'s overhaul and repair base in Platte County, Missouri, time used to test engine electrical harnesses was reduced from two hours to ten minutes. It was found that hand testing was too slow to meet demanding overhaul schedules. The problem was solved by the purchase of a DIT-MCO universal automatic circuit analyzer. In addition to a reduction in testing time, it was found that higher standards of quality were achieved through its ability to perform leakage resistance tests.

CIRCLE NO. 234 ON INQUIRY CARD-PAGE 17

For More Information Circle No. 791 on Inquiry Card—Page 17→



SIMPLE DEPENDABLE protection against phase failure and phase reversal

A-B protector

opens control circuit in 3 to 4 cycles...under all load conditions

When men, motors, or the driven machines can be "hurt" by "phase failure" or "phase reversal" . . . the new Allen-Bradley Bulletin 812 should be used as a low cost and reliable "safety" insurance. It detects phase failures and reversals electrically, and within not more than 3 or 4 cycles, opens the motor control circuit—regardless of motor load (including no load)—and thus stops the motor.

The Bulletin 812 Type A relay protects motors against all phase failures. The Type B relay protects motors against loss of a phase and reversed phase rotation. For the first time, dependable protection is provided for motors supplied by Wye-Delta and Delta-Wye power systems having the neutral ungrounded or not connected to the circuit.

Bulletin 812 relays offer positive protection against motor or machine damage due to opening a primary line—and under all "load" conditions. No field adjustment is required. Remote reset is inherent. Furthermore, as a static device which does not rely for its operation on "motor" revolution the possibility of failure to operate is eliminated.

Bulletin 812 relays are built in four sizes which will reliably protect motors with full load currents from 1.25 amperes to 300 amperes. Let us send you more information about this dependable answer to phase failure and phase reversal problems.





Bulletin 812 Type A phase failure relay protects a 3-phase motor against loss of a phase.

Bulletin 812 Type B phase failure and phase reversal relay protects a 3-phase motor against both loss of a phase and phase reversal.



Allen-Bradley Co. 1316 S. Second St. Milwaukee 4, Wis.



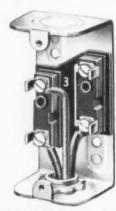
In Canada— Allen-Bradley Canada Ltd. Galt, Ontario

New Allen-Bradley Bulletin 800 Standard-duty Push Buttons CAN BE WIRED

IN HALF THE TIME!



CONTACT MECHANISM IN THE COVER—COMPLETELY PROTECTED FROM CARELESS SCREWDRIVERS AND CARELESS WIRING.



WIRING TERMINALS IN THE BASE

—COMPLETELY EXPOSED

FOR EASY WIRING.



Bulletin 800 standard-duty push buttons—with strong, gray, molded cover are "good-looking" and "safe" In operation, All stations have dual knockouts, top

Here's an entirely new idea in push button stations—a wraparound cover which contains and protects the contact mechanism. Removing the cover exposes all terminals for instant and easy wiring. Heavy, silver plated contacts connect the push button assembly in the cover with the terminals in the base.

Matching ribs in the cover and notches in the molded terminal base eliminate the possibility of having wiring connections made incorrectly. A molded, bakelite shield protects the contact mechanism and prevents careless wiring from interfering with contact operation. All push button contacts are silver and of the double break construction.

Specify the new Allen-Bradley standard-duty station on your next order. Its installation time-saving feature, alone, should make you a regular customer!



SELECTOR SWITCH

You can't beat this for convenience—a selector switch with the same easy-to-wire construction as the push buttons, shown above—plus the feature that you can change—in seconds—from two position to three position (or vice versa)! The correct name plate is furnished with each switch. See for yourself how easily this is accomplished.

CHANGE IT FROM 2 POSITION TO 3
POSITION (or vice verse)...in 30 Seconds!



ALLEN-BRADLEY

Allen-Bradley Co., 1316 S. Second St., Milwaukee 4, Wis. In Canada—Allen-Bradley Canada Ltd., Galt, Ontario

MICRO SWITCH ... FIRST IN PRECISION SWITCHING



MICRO SWITCH "ML" Switch is control limit to avoid conveyor jams

This conveyor system was designed to carry off wood scraps. A vane is constructed in the conveyor line so that material passing down the line presses against the vane in case of a jamup. The vane is counterweighted by a sector cam made of heavy steel plate. When the lowering of the cam operates the "ML" switch, the conveyor line shuts down. The "ML" switch was selected because it is sealed against weather and permits a 60° overtravel.

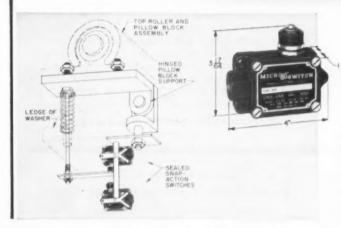


MICRO SWITCH "ML" switches combine rugged construction with precise operation. Both single and two-circuit switching units are available. Electrical rating is 20 amperes 120, 240, 480 volts, ac; ½ ampere 115 volts dc; ¼ ampere 230 volts dc; ¾ H.P. 110 volts ac; 1½ H.P. 220 volts ac.

How to make your production dollar go farther—with

MICRO SWITCH

PRECISION SWITCHES



There are thousands of applications for MICRO SWITCH SWITCHS SWITCHS ON plant equipment. For additional information on how to use MICRO SWITCH precision switches, let us send you MICRO Tips Digest—a gold mine of profit-making suggestions.



MICRO SWITCH distributors with full stocks of switches for every plant use requirement are located near you. Look under "Switches, Electric" in the Yellow Pages.

Tension kept within limits by spring lever working between two switches

Fabric tension in a bleaching and dyeing machine is kept from becoming too great or too slack by the use of two MICRO SWITCH "F" switches. The switches are positioned to stop the machine in the event the material passing through the top roller becomes too tight or too loose. Slackening of the cloth brings the lever against the upper switch. Excessive tension releases the springs and the bottom switch is actuated. The Type "F" switches were selected because of their dependability and their sealed protection against moisture and dirt.

MICRO SWITCH "F" switches are long-lived precision switches with the capacity for making and breaking steady state currents of 20 amperes and switching inrush currents as high as 75 amperes.

MICRO SWITCH

A DIVISION OF MINNEAPOLIS-NONEYWELL REGULATOR COMPANY

In Canada, Leaside, Taronto 17, Ontario · FREEPORT, ILLINOIS



For More Information Circle No. 792 on Inquiry Card-Page 17



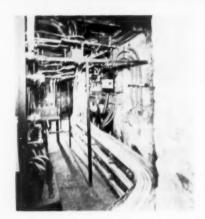
CASE HISTORIES



Tool Life Upped 400% In Electric Furnace

By nitriding end mills and other high speed tools for one hour at 1050 F in an internally-heated electrode-type Ajax Electric Company salt bath furnace, Temco Aircraft Co., Dallas, Texas, is prolonging tool life 200% to 400%. In addition, labor requirements for resharpening of the cutters have been reduced by 10%. The nitrided case is .001" and is so hard that it cannot be measured by Vickers reading or a scratch test. In terms of Brinell hardness, readings up to 1100 are secured.

CIRCLE NO. 223 ON INQUIRY CARD-PAGE 17



Metal Trough Cuts Labor Costs by 75%

The Chas. E. Tull Company solved the awkward problem of bringing more cables into an older building to meet the greater demand for electrical power. Unable to continue the conduit system inside the building the company installed three rows of Cope 12 inch width expanded metal cable troughs. Continuous metallic contact between the two supporting systems is maintained through a box to which the systems are secured. Tull estimates that the use of cable trough saved at least 75% of the labor costs.

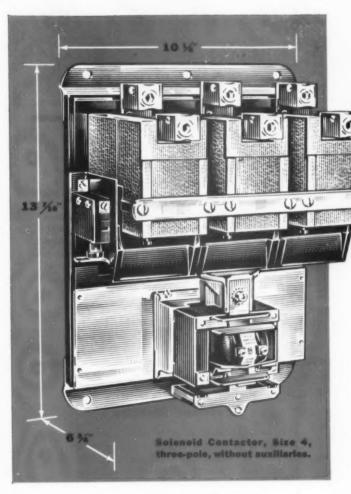
CIRCLE NO. 236 ON INQUIRY CARD-PAGE 17



Light-weight Motor Saves \$3000 in Transportation Costs

Because of General Electric motor's lighter weight, assembly costs were reduced materially at the American Blower Corporation plant. The lighter motor has greatly reduced worker fatigue. Installation time has also been lowered considerably because the company was able to redesign their products to incorporate a more standard mounting arrangement. Due to the over-all lighter weight, American Blower saved an estimated \$3,000 in transportation costs alone over a one-year period.

CIRCLE NO. 235 ON INQUIRY CARD-PAGE 17



ENGINEERING DATA

Size 4 A.C. Contactor Ratings*

Service	Ar	Hour spero aling	Enc	Enclosed Pewer Rating Three Phase			
	Open	Enclosed	Ve	Volts			
Across-the-Line Starting	150	135	11 22 440	0	25 50 100 15 30 60 hree Phase s K, W		
Across-the-Line Plug-Stop or Jogging	150	135	11 22 440	0			
Service	8 Heur Ampere Rating	Single Volts	Phase K.W.	Three Volts			
Resistive Heating Lead**	150	110 220 440 .550	15 30 60 75	110 220 440 550	26 52 105 130		
Tungsten Lamp Lighting or Infrared Meating Load**	120	Amperes	for 250 V	oit Circuits	or Les		

*The ratings listed are those recommended by the National Electrical

Manufacturers Association.

These ratings apply to open or enclosed contactors.

NEW 150-amp solenoid contactor extends roven line

This new Size 4 A.C. solenoid contactor is ideal for use in motor starters and controllers for main line, accelerating and reversing purposes and for resistance heating and lamp loads as well.

It's the new Bulletin 4454-incorporating many advanced design features found on Ward Leonard's Sizes 0 to 3 contactors. Check these outstanding features:

New sintered-silver-cadmium-oxide contacts -can repeatedly handle high inrush currents without a sign of contact welding, excessive pitting or other damage.

Simple, compact solenoid design-excellent for modern metal control panels using accessible front-of-board wiring, particularly useful where panel space is limited.

Available with two or three main poles and up to 4 side-mounted auxiliaries. Also with provision for mechanical interlocking and addition of overload relays.

Completely described in Bulletin 4454. Write for your copy today. The Ward Leonard Electric Co., 50 South Street, Mount Vernon, New York. (In Canada: Ward Leonard of Canada Ltd., Toronto.)

LIVE BETTER ... Electrically





MOUNT YERNON, NEW YORK













red Controls Since 1892



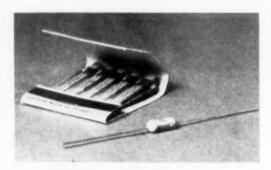
CASE HISTORIES



Motor Standardization Lowers Manufacturing Costs

Because of the varied horsepower ratings available in the different General Electric motors, the Pacific Pumping Company has been able to standardize on the construction of pump parts. The savings realized from the stocking and production costs amounted to almost 20% of the manufacturing costs. One of the features of the new pump is its lighter weight, which saves in shipping costs.

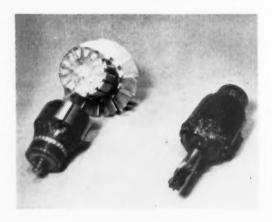
CIRCLE NO. 238 ON INQUIRY CARD-PAGE 17



Power Resistors Improve Overload Stability

A manufacturer of extremely precise electronically regulated power supplies needed a resistor of unusually high stability. In this equipment, "precision" resistors subjected to the overload occasioned by certain vacuum tube failures charred, and opened up. Some even literally blew up. Ward Leonard application engineers suggested special Vitrohm resistors of the required stability plus the overload capacity—at a saving in cost over the precision resistors.

CIRCLE NO. 239 ON INQUIRY CARD-PAGE 17



More Expensive Varnish Cuts Armature Failures 25%

Portable Electric Tool Company effected an estimated 25% reduction in field failures from wire movement in high-speed motor armatures by changing to a more expensive varnish which was capable of both insulating the armature and holding the wires in place. The significant drop in field failures allowed for savings in service to damaged motors and improved Portable Electric's prestige. Either result was worth many times the few pennies difference in the per-gallon costs of the varnishes involved.

CIRCLE NO. 240 ON INQUIRY CARD-PAGE 17

For More Information Circle No. 794 on Inquiry Card—Page 17-> PURCHASING

CAN YOU ANSWER THESE QUESTIONS ON PROPER CARE AND MAINTENANCE OF WELDING IGNITRONS?

	YES	NO		YES	NO
 Store ignitrons in a vertical position and in their cartons? 			8. Can nearby electrical fields cause arcs within an ignitron?		
2. Shut off ignitron water supply immediately after operation?			Can inadequate cooling-water flow cause ignitron failure?		
3. Check rectifiers when installing ignitron replacements?			10. Can most premature ignitron failures be prevented by proper maintenance?		
4. Is a slight amount of play desirable in ignitron connections?			11. Will an ignitron with a "wet" ignitor still operate for some time?		
5. Measure outlet water temperature to check ignitron temperature?			12. Does mercury on the anode or glass seal render a tube permanently useless?		
6. Does a "wet" ignitor show a tube has been operated at too high temperature?			13. Should tops of ignitrons on standby be kept slightly above room temperature?		
7. Shut off power to thermostat controls immediately after operation?			14. Should negative voltage be applied to the ignitor?		
			49		
			CAN DOWN AND STATE OF THE PARTY		>
			AND HEAD IN THE STATE OF THE ST		>

New G-E welding-ignitron manual supplies these and other answers to help you extend tube life . . . cut downtime . . . increase output!

"INSTRUCTIONS for Handling, Installing and Servicing General Electric Ignitrons" is a complete guide to proper care and maintenance of welding ignitrons. It shows you how to get full-length, trouble-free tube service that is sure to help lift the production efficiency of any welder installation, regardless of size.

In this new General Electric manual, you will

find such practical information as how to store ignitrons...operating conditions that mean top performance...how to prevent common causes of tube failure.

Obtain a free copy from your local General Electric tube distributor, or complete the coupon below and mail! Electronic Components Division, General Electric Company, Schenectady 5, N. Y.

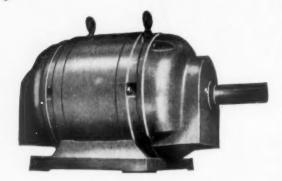
Answers. Yes: 1, 3, 5, 6, 8, 9, 10, 11, 13. No. 2, 4, 7, 12, 14.

Progress Is Our Most Important Product

GENERAL 🍘 ELECTRIC

General Electric Company—Tube Sales CART #3—Schenectady 5, New York
Please send, free of charge, "Instructions for Handling, Installing and Servicing G-E Ignitrons," ETI-1428, to:
NAME
ADDRESS
CITY

WALLEY BALL BEARING MOTORS STAY ON THE JOB.



When specifying the power unit for your machinery, bear these exclusive VALLEY features in mind!

- Specifically designed for 'round-the-clock' duty in high temperatures.
- Drip proof and splash proof, semi-enclosed construction protects motor from harmful liquids and flying particles.
- Fully enclosed ball bearings reduce friction 75% to provide a saving in power.
- Built in ½ to 75 horse power sizes for wide adaptability in your power planning.

VALLEY Motors, stay on the job longer, even under heavy and continuous power demands. Thus for economical power that will last the life of your equipment — always specify VALLEY.



TOTALLY ENCLOSED

The latest development in Air-Cooled, Ball Bearing motors, Totally enclosed to assure protection against dripping or splashing liquids, metal chips, and damaging dust. 2 to 60 h. p.

Write For Descriptive Literature

ELECTRIC CORPORATION
4221 FOREST PARK BLVD. - ST. LOUIS 8, MO.

For More Information Circle No. 813 on Inquiry Card-Page 17

For Hard-to-Light Machines . . . New Adjustable-Arm

Hir-Colled Dazors

with Side-Mounted Reflectors





Now it's as easy to beam light into a recess, or around an offset, as onto a simple tool or bench position. This Adjustable-Arm Dazor with side-mounted reflector offers same low-cost air-cooled efficiency and positive tension control as top-mounted style. Uses 60-w bulb. Call your Dazor distributor. Dazor Manufacturing Corp. St. Louis 10, Missouri.



... Makers of

DAZOR FLOATING LAMPS

For More Information Circle No. 814 on Inquiry Card-Page 17

TO PURCHASING DEPARTMENT PERSONNEL

AT THE PRESENT you are reading a copy of Purchasing Magazine most likely addressed to the head of your department . . . or an assistant.

YOU WELL KNOW that the contents of this publication definitely helps you do a better purchasing job.

KEEPING YOU INFORMED on trends and new ideas, Purchasing helps you prepare for advancement within your company.

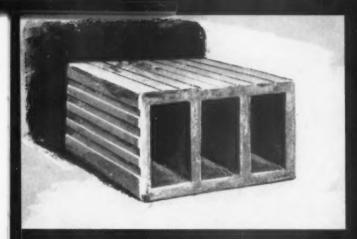
YOU SHOULD have your own personal copy to completely digest the articles—and to have your own file copies always available for immediate reference.

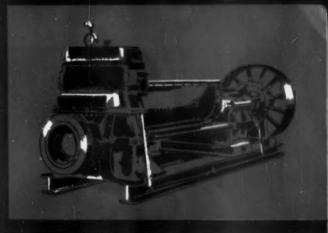
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WE SHALL then enter a one year subscription for you and bill you (or your company) at a later date—at the one year rate of \$4.00.

MAIL IT TODAY!

For More Information Circle No. 811 on Inquiry Card—Page 17->





No Margin for Air-No Margin for Error

ANOTHER DRIVE REQUIREMENT MEETS ITS MASTER

Yes, it's a fact—unless you remove the air from the clay, you get a no-good tile. And whether air is your problem, or not—error is always a problem. And it's never a mistake to come to Master for the right power drive. In every kind of industry, Master customized package drives give you the utmost in flexibility, compactness and performance.

Here, the primary requirement is power—and the husky, big 200 H.P. Master fills the bill year in and year out. Your requirements might be better met by integrating Master components into a single, efficient, compact unit for the right horsepower, right shaft speed and right mounting features. What are they?





a quick check of indent-depth tells you this electrical connection is safe!

There's no way to check a soldered connection—without destroying that connection! The modern Burndy crimping method affords a quick check for electrical and mechanical safety—simply by measurement of this depth of indent. The cross-section view (right) shows how this indent is designed to coin conductor and connector into intimate contact...for a strong connection, as electrically sound as the conductor itself. And the depth of indent is controlled by the installation tool! Unlike solder which can weaken at high temperatures frequently encountered by modern equipment, the Burndy crimped connection with its wide tolerance endures in all environments. Too—Burndy electrical connections get rid of human error—no skill or training is required. The control is engineered into the connector and the tool! Put a crimp on rising production costs!—send for the full story on Burndy crimp-type connections, today!

first piece check guarantees electrical connections for the entire production run





Norwalk, Connect

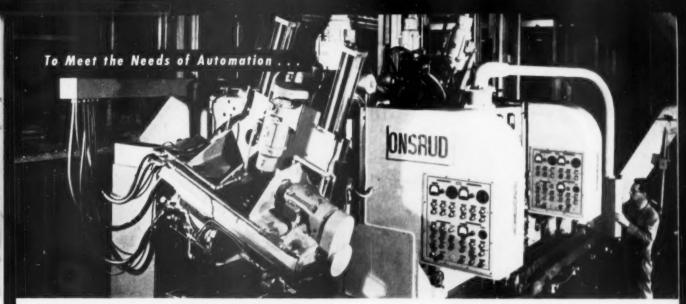
Export: Philips Export Corp.

Toronto Canada

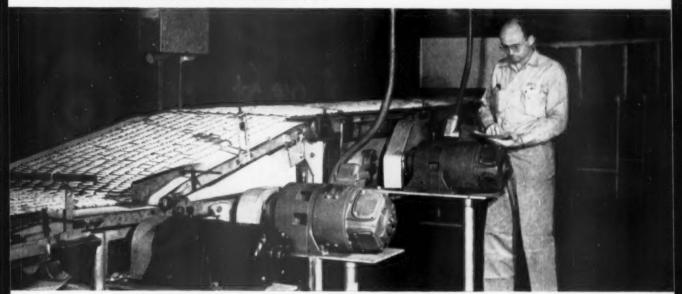
For More Information Circle No. 796 on Inquiry Card—Page 17 244

For More Information Circle No. 797 on Inquiry Card—Page 17-

PURCHASING



FROM AUTOMATED MACHINES ...



TO COOKIE CONVEYORS ...

General Electric Gear-Motors Prove Low-Cost Dependability in Every Industry

Whether you use cranes or conveyors, machine tools or mixers, any of the host of applications employing low-speed drives, G-E gear-motors can save you money.

The more compact construction of the packaged gear-motor design assures speed reduction in a minimum of cubic feet. Units are easy to install, and, because gear-motors are built for specific speed requirements, may be direct-connected, if desired. This means down time can be reduced because inspection and replacement, common with belts, chains and other forms of speed reduction, are not required.

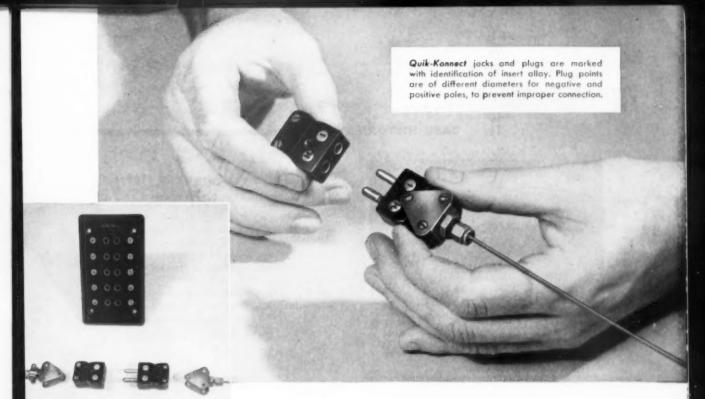
To meet the increasing demand for gear-motors, General Electric has consolidated its gear-motor activities and established a new Gear Motor and Transmission Components Department in Paterson, N.J., devoted solely to the design and manufacture of mechanical power transmissions. For more information, contact your G-E Apparatus Sales Office or nearest gearmotor distributor. Gear Motor and Transmission Components Department, Paterson, New Jersey.

Progress Is Our Most Important Product

GENERAL 🚳 ELECTRIC



For More Information Circle No. 798 on Inquiry Card—Page 17 For More Information Circle No. 799 on Inquiry Card—Page 17—
246



The **Quik-Konnect** Components consist of (left to right) cable clamp, jack, plug, and tube connector, and (above) jack panel which can be mounted in conduit box or control panel.



Only the terminal cover at the rear of the connector need be removed during connection of wires.

Honeywell's new Quik-Konnect* Thermocouple Components cut installation time 75%

. . . available through your



With these new Quik-Konnect Components you can make single, multiple or selective manual connection of a group of couples to an instrument. No handling of small parts. No confusing snarls of loose wire.

All assemblies are integral units. You can use them for quick extension wire connections in a laboratory or test cell, or for convenience and certainty of proper connections in permanent or semi-permanent installations.

Plug and jack assemblies have inserts or points made from the thermocouple alloys to which they should be connected. Available in four standard T/C combinations. For complete details, call your nearby HSM (Honeywell Supplies Man). He's as near as your phone; or write for S005-I specification sheet.

MINNEAPOLIS-HONEYWELL REGULATOR Co., Industrial Division, Wayne and Windrim Avenues, Philadelphia 44, Pa.—in Canada, Toronto 17, Ontario.



Honeywell BROWN INSTRUMENTS

*Trade name of Minneapolis-Honeywell Regulator Co.

First in Controls



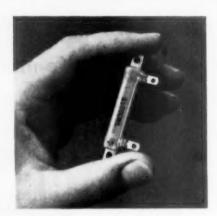
CASE HISTORIES



Dual-Element Fuses End Motor Burnouts on Welders

Black Sivalls and Bryson, Inc. had trouble with single phasing and subsequent burnout of 3-phase welders. Motor repairs and replacements plus the down-time proved costly. As a result of a series of tests the company protected all welding machines with Fusetron fuses in the proper motor protection sizes. Since this was done they have not had one motor burnout due to single phasing.

CIRCLE NO. 241 ON INQUIRY CARD-PAGE 17



Resistor Helps Reduce Computer Size; Speeds Assembly

A business machine manufacturer faced the problems of reducing the overall size of a computer. Several critical circuits contained 20-watt tubular wire-wound power resistors chosen for their high overload capacity. Selection of a newly designed Ward Leonard 20-watt Ministrip vitreous enamel power resistor achieved the following: Volume occupied by the resistor reduced 38%; substantial savings in assembly time gained since strip-type resistor has built-in mouting brackets.

CIRCLE NO. 242 ON INQUIRY CARD-PAGE 17



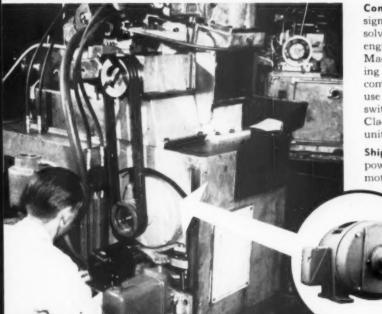
Special Duplex Outlet Speeds Test Rack Construction

Five rows of Plugmold on a test rack at the plant of The E. Ingraham Company provide a duplex outlet every six inches and offer a dramatic example of the time and money saving abilities of Plugmold. This rack was built by two men in two days. Another rack exactly the same as this one but drilled to accept standard duplex outlets took the same two men three weeks to build—a saving of 13 working days. Plugmold is manufactured by The Wiremold Company.

CIRCLE NO. 243 ON INQUIRY CARD-PAGE 17

For More Information Circle No. 800 on Inquiry Card—Page 17→

"We switched to the compact G-E TRISCLAD motor and boosted power by 50%"



Compact . . . power-packed — The compact design of General Electric's Tri-Clad '55' motor solved a difficult power problem for Roger Pyne, engineering vice-president of the Van Norman Machine Company, Springfield, Mass. According to Mr. Pyne, "space limitations on the company's new centerless grinder permitted the use of only a 5-hp conventional motor. By switching to the smaller, more compact Tri-Clad '55' motor we were able to go to a 7½-hp unit and boost our grinder's capacity by 50%."

Shipping costs reduced 40%—In addition to the power advantages of the smaller Tri-Clad '55' motor, many companies are finding that the

lighter, easier to handle motor has cut shipping and handling costs as much as 40%. Contact your nearest General Electric Apparatus Sales Office to learn the many years ahead benefits that the new Tri-Clad '55' motor can bring to your product . . . to your operation.

FREE SLIDE RULE ADVANCE INFORMATION TO HELP YOU PLAN AHEAD

SECTION D891-1



WRITE FOR FREE SLIDE RULE which lets you determine at a glance the weight and space benefits of recently announced NEMA standards for larger motors. This handy slide rule provides advance information to solve your design problems . . . to benefit your overall operation.

GENERAL ELECTRIC COMPANY
SCHENECTADY 5, NEW YORK
I want advance information on new NEMA dimension
for larger motors. Please send me free slide rule.
NAME
COMPANY
ADDRESS
CITY & STATE
TITLE

Progress Is Our Most Important Product

GENERAL E ELECTRIC



For More Information Circle No. 801 on Inquiry Card-Page 17

Circuit Breakers' Warnings End Costly Breakdowns

An eastern parts manufacturer's process depended upon a series of ingenious conveyors. They carried the materials into huge bake ovens, kept them there for an exact period, then carried them out. The intense heat led to evaporation of lubricaton whch "froze" the conveyors. This, in turn, overloaded the circuits and blew fuses. By the time the breakdown was detected, materials stymied in the ovens were burned beyond salvage and losses ran up to \$700 plus loss of production time. The problem was solved by installing Square D circuit breakers. They hold the circuit closed against minor "freezings" and give workmen an immediate visual warning of trouble.

Circle No. 244 on Inquiry Card-Page 17

Planning Insures Adequate Electrical System

A southern manufacturer of coated abrasives had expanded until the plant's electrical system was seriously inadequate. A Square D engineer analyzed existing demands and future needs in terms of further expansion and suggested that additional equipment be provided in anticipation of those needs. Because of this sound planning, the electrical system was more than equal to the bigger job necessary for the most recent expansion of this manufacturer.

Circle No. 245 on Inquiry Card-Page 17

Changeover Boosts Power Factor, Cuts Cost \$200 Monthly

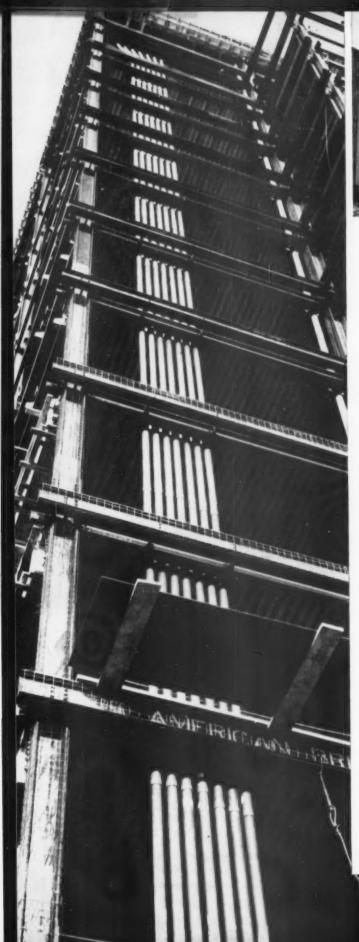
A southern manufacturer called in a Square D field engineer to see what he could do about an electrical system that wasn't holding up under the pressure of around-the-clock production. A check revealed inadequate wiring capacity and seriously unbalanced load conditions. A complete revamping of the distribution system was necessary. The changeover improved the power factor from 55% to 85% with a resultant saving of about \$200 a month.

Circle No. 250 on Inquiry Card—Page 17

For More Information Circle No. 802

on Inquiry Card—Page 17→

PURCHASING





Important Wiring gets
Permanent Protection with

SHERARDUCT

RIGID STEEL CONDUIT

Specify National Electric Sherarduct and you safeguard electrical wiring against corrosion for all time.

NE's Sherardizing process of dry galvanizing under heat actually alloys corrosion resistant zinc with the steel walls of the conduit. Threads are machined before galvanizing so that the entire length of the conduit receives a uniform protective zinc coating from end to end.

On the job Sherarduct helps cut construction costs. A slick inside coating of Shera-enamel makes fishing and wire pulling easy. The gradual heating and cooling of the Sherardizing process anneals the steel conduit . . . develops the ductility needed for efficient bending and working.

On the next conduit installation remember — Sherardizing is Galvanizing at its best—Sherarduct is Galvanized conduit at its best.

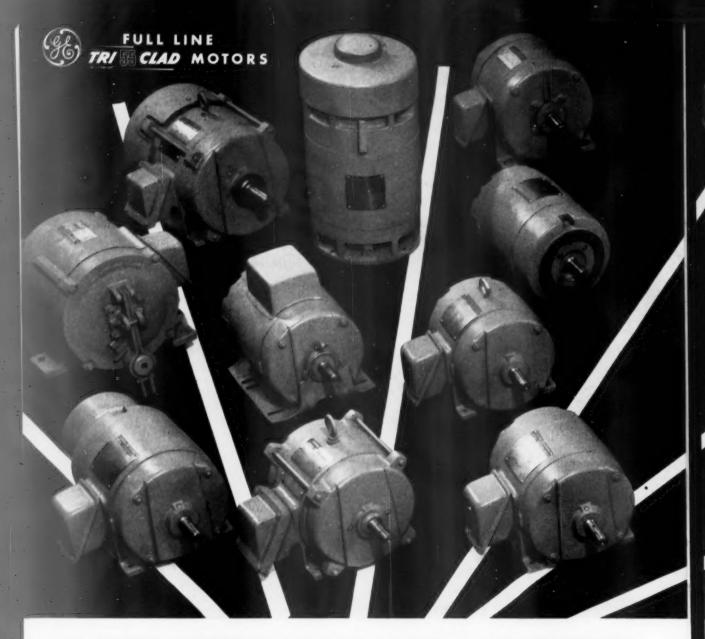
National Electric Products

DITTERUPCH DA

2 Plants * 11 Warehouses 35 Sales Offices



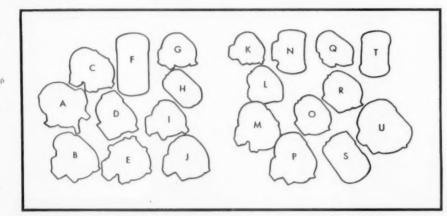
New Bell Telephone Building, Gateway Center, Pittsburgh, Pa., showing main vertical conduit runs of Sherarduct. Architects: Press C. & William C. Dowler. General Contractor: Mellon-Stuart Company. Electrical Contractor: Franklin Electric Company. Electrical Engineer: Carl J. Lang.



THE MOTOR YOU NEED

- A. Clutch-brake, dripproof, $2\text{-}3\phi$ B. Brake-motor, $2\text{-}3\phi$
- Explosion-proof, fan-cooled, 2-3¢
- Dripproof, resilient-base, 1¢
- Explosion-proof, non-vent., 2-3¢
- Vert. hollow-shaft, P-base, 2-34
- G. Loom motor, 2-3¢
- Dripproof, round frame, C-face, 2-3 ϕ

- TENV, standard-duty, 2·3φ
 Standard dripproof, 2·3φ
 Close-coupled pump, C-face, 2·3φ
- Standard dripproof, 1ϕ
- M. Explosion-proof, fan-cooled, 1ϕ
- N. Vert. solid-shaft, P-base, 14
- O. Enclosed, air-over, $2-3\phi$ P. TEFC, severe duty, 2-3¢
- Q. Standard TEFC, 1φ R. Dripproof, resilient-base, 2-3φ
- S. Dripproof, round-frame, C-face, 14
- T. Vert. solid-shaft, P-base, 1φ
 U. TEFC, standard duty, 2-3φ





IS IN THIS PICTURE

Now! You never have to take *less* than General Electric Tri-Clad 55 motor quality—because G.E. now offers you a *complete line* of Tri-Clad 55 motors to assure you of a perfect match of motor to machine.

In most cases, you'll choose the rugged, versatile Tri-Clad 55 standard motors (single- or polyphase, dripproof or enclosed). For those special industry applications, General Electric also offers you a full line of industry-specified motors (for example, end-mounted, built-in motors for the pump and machine tool industries).

Of course, all Tri-Clad 55 motors incorporate these extravalue features: Mylar* polyester film insulation for longer motor life, minimum maintenance; silicone coating on the motor stator assembly for maximum protection against failure due to moisture; Formex† magnet wire insulation for protection against heat-aging and abrasive dusts; non-wicking leads; more rigid construction; easier installation and servicing; and many, many more.

For expert engineering assistance in selecting the right G-E motor for your application, contact your nearby G-E Apparatus Sales Office. Or, for more information about General Electric's full line of Tri-Clad 55 motors, write: General Electric Co., Section 840-6, Schenectady 5, N. Y. and ask for bulletins GEA-6240 and GEA-5980.

†Reg. trademark of General Electric Co. *Reg. trademark of DuPont Co

GENERAL 👺 ELECTRIC



CASE HISTORIES



Burned-up Coil Losses Cut by Dual-Element Fuses

Burning up of solenoid coils that activate the plungers that dump weighing scales was a problem for Dewey Portland Cement Company. They were losing as many as 4 coils on one 8-hour shift. To give over-load protection to the thrust coil, which is on a 125 volt DC power supply, Dewey installed a 3.2 Buss Fustat in a series with the coil. The Fustats saved the company money in two ways: by practically eliminating the cost of replacing solenoid coils; and by greatly reducing downtime losses.

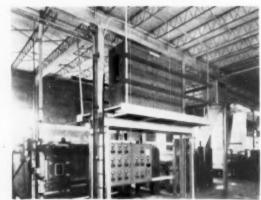
CIRCLE NO. 247 ON INQUIRY CARD-PAGE 17



Resins End Coil Failures in Water Units

Service life of an automatic domestic water softener has been lengthened through the use of Bakelite epoxy resins to encapsulate a valve coil. Originally, the coil exposed had a high rate of failure. This caused troublesome expense to dealers, and irritation to customers. Deluxe Coils, Inc. provided a practical solution by encapsulating the coil in a compound based on epoxy resins. These resins have a high degree of resistance to chemicals and are impervious to moisture penetration.

CIRCLE NO. 248 ON INQUIRY CARD-PAGE 17



For More Information Circle No. 803 ←on Inquiry Card—Page 17 254

Packaged Drive Helps Triple Production

A continous dyeing range, powered and controlled by a General Electric speed variator packaged drive, is reported to have tripled production at Timberline Fabrics Company. It also cut consumption of water used in the operation by approximately 85%. Because of continuous feeding and removal of the finished fabric, it is unnecessary to stop the machinery to change rolls. The speed variator provides simplified connections, saves valuable space by being mounted above the floor, and assures control of the operation.

CIRCLE NO. 249 ON INQUIRY CARD-PAGE 17



Sylvania's R-52 lamp has a sealed-in reflector that never dims ... produces more light where you want it . . . makes costly fixture care unnecessary.

All downward working light-no upward wasted light ... with this Sylvania reflector lamp

Sylvania's R-52 reflector lamp has helped industrial plant management to effect important lighting economies, and achieve greater lighting efficiency.

The R-52 reflector lamp is a "high-bay" lamp particularly suited to overcome plant conditions

of severe



dirt, grease and smoke. Its sealed-in aluminized reflector is 100% dirt-proof . . , eliminates the need for costly, timeconsuming fixture-cleaning . . . and provides greater efficiency throughout the life of the lamp.

As an integral part of the Sylvania R-52, the reflector is angled to concentrate a maximum of usable working light downward . . . helps increase productive efficiency . . . and provides more useful light for the same wattage.

R-52 reflector lamps are available in 500- and 750-watt sizes. Your Sylvania Supplier will gladly demonstrate their efficiency and advantages. Call him for complete information, or write:

> SYLVANIA ELECTRIC PRODUCTS INC. Lighting Division, Dept. 7L-4505 60 Boston Street, Salem, Mass.

> > In Canada:

Sylvania Electric (Canada) Ltd. Shell Tower Building, Montreal

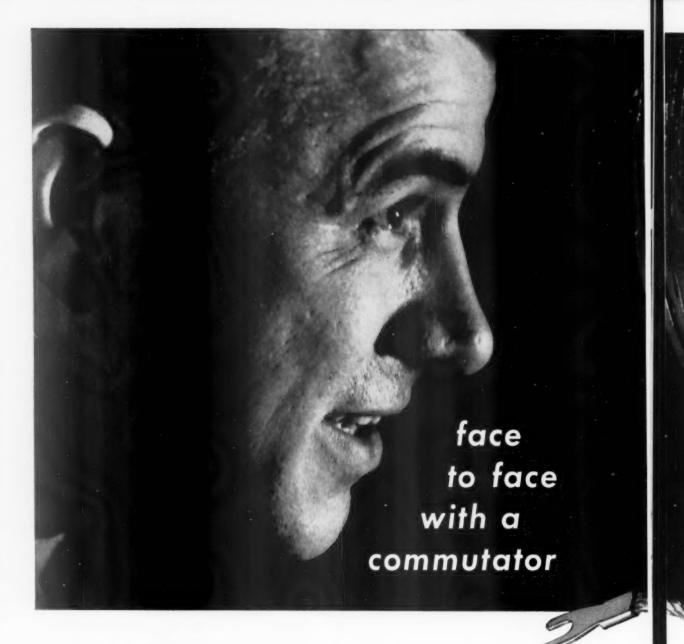
SYLVANIA

... the fastest growing name in sight

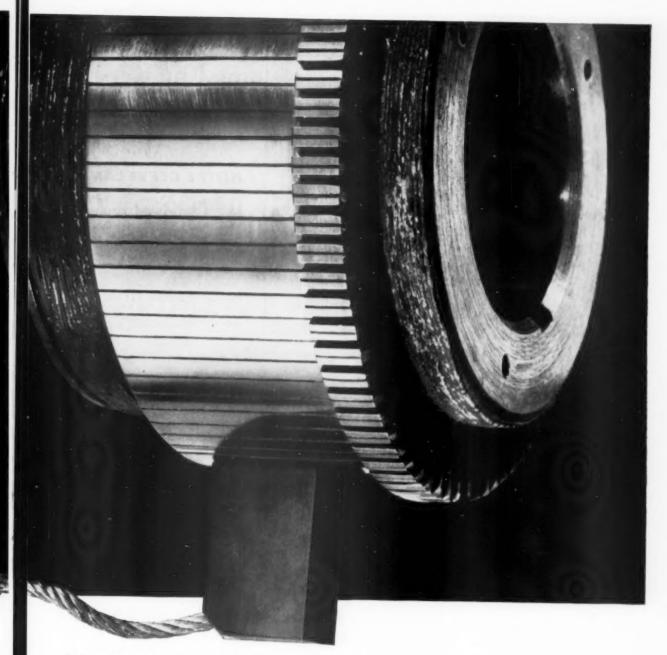
ELECTRONICS TELEVISION ATOMIC ENERGY

MAY, 1957

For More Information Circle No. 804 on Inquiry Card-Page 17



Westinghouse carbon brushes minimize commutator wear ...have long life



In comparison to a commutator, carbon brushes are low cost and expendable. They can lower maintenance costs through longer life and less commutator wear. That's why it's false economy to use anything but the best in carbon brushes.

Westinghouse carbon brushes represent total design integration of brushes to machine, assure proper brush selection and optimum operating characteristics. Westinghouse carbon brushes provide and maintain an oxide surface film on the commutator to assure

good commutation on d-c motors and generators.

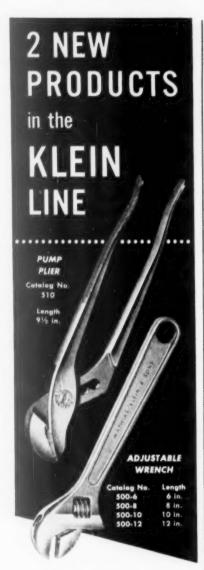
Westinghouse brushholders assist, too, by maintaining proper contact pressure to keep the brushes riding smoothly.

Contact your nearest Westinghouse sales office for carbon brush consultation... and write for helpful booklet, Carbon Brushes and Commutator Maintenance, B-6150-A. Westinghouse Electric Corporation, 3 Gateway Center, P. O. Box 868, Pittsburgh 30, Pennsylvania.

YOU CAN BE SURE ... IF IT'S Westinghouse



For More Information Circle No. 805 on Inquiry Card-Page 17



These new high-quality tools have been added to the Klein line.

A Pump Plier that gives easy one-hand operation and a firm grip in any of four positions.

And the new Klein Adjustable Wrenches of drop-forged alloy steel, light in weight, chrome plated for lasting protection and service.



Write for Bulletin

Bulletin No. 1157 on these two Klein tools is now available. Send for your copy.

Mathias
Committee IEST
7200 McCORMICK ROAD - CHICAGO 45, ILLINOIS

For More Information Circle No. 806 on Inquiry Card-Page 17

Industrial Developments



A view of the entrance to the new general offices of the Reliance Electric and Engineering Company in Euclid, Ohio.

A new \$1-1/4 million dollar, three-story air-conditioned office building now centrally houses the sales and general administrative offices of Reliance Electric and Engineering Co., Cleveland, Ohio. The 65,000 square foot building was nine months in erection and preparation for occupancy by the 300 company office personnel who moved in the first of this year. Present expansion plans allow for doubling the existing building size at an appropriate time in the future. The new structure is located at 24701 Euclid Avenue, Euclid, an eastern suburb of Cleveland.

Turchan Follower Machine Company, formerly of Detroit, has moved into its new building at 26950 Van Born Road, Inkster, Michigan. The new plant provides 20,000 square feet of floor space to accommodate increased engineering, experimental and manufacturing facilities, for hydraulic tracer controls and tracer controlled machine tools. An area devoted to demonstrations of tracer controlled attachments for all types of machine tools is also provided in the new building.

Simpson Electric Company, Chicago, Ill. has announced that the parent company, American Gage & Machinery Company, has acquired the 37 year old Standard Transformer Company, Warren, Ohio, manufacturers of transformers for public utilities, in sizes from light pole to 10,000 KVA.



HOTEL CLEVELAND



Dine in the splendid old world setting of a grand dining room. The menu is varied, the service unexcelled.



One of the brightest of the city's supper clubs. Dancing nightly from 9.00 p.m.
Air conditioned, of course.



A true specialty restaurant for Fabulous Roast Beet, roasted, carved and served to your order.

MEN'S BAR

Strictly stag — is this all male haven for good drinks, good food and good talk. Plus sports events on TV.

TRANSIT BAR

for rapid service in the most unique bar in the country decorated with an outstanding collection of miniature trains

the PATIO

Pause — in the relaxing, informal atmosphere of the gayly decorated Patio. It's a Cleveland habit to say — "Meet me at the Patio."

Coffee Shop

Service is brisk and decor cheerful in the modern, air-conditioned coffee shop. Enjoy a tasty sandwich or a moderately priced meal.

Hotel Cleveland

WRITE OR CALL FOR YOUR RESERVATIONS NOW
For More Information Circle No. 1067
on Inquiry Card—Page 17
PURCHASING

Companies using General Electric's Simplified Lamp Replacement Plan save as much as \$7,500 a year!

SPECIAL REPORT by E. A. Linsday



E. A. Linsday, well-known G-E authority on industrial lighting.



FACTORIES, like McDonnell Aircraft Corp., realize big savings annually with General Electric's Simplified Lamp Replacement Plan. They maintain a higher light level, too.



Office Buildings are kept brighter—at lower cost. Brown Shoe Company uses this new relamping system in their new St. Louis office—saving about 10¢ per lamp per year!



SMALL BUSINESSES can profit, too, by replacing all their lamps at one time. Naturally, the dollar savings will not be as important as the savings in time and trouble

CLEVELAND, OHIO—Ask anyone here at General Electric why they're so enthusiastic about the G-E Simplified Lamp Replacement Plan—replacing fluorescent lamps in groups instead of one-at-a-time—and he'll explain it this way: "If you knew exactly when your car was on the brink of costing you a big repair bill, you'd stop driving it just short of that point and trade it in, wouldn't you? Well, we control the making of our lamps so carefully that we are able to tell you the most economical time to change them. This enables our customers to replace all the G-E Lamps in a given section or department before the great majority are about to burn out." The result? Fewer interruptions of office or factory work; a cleaner, brighter lighting system; fewer starter and ballast breakdowns; more light for the money.

30 LAMPS OR 30,000—Regardless of its size, your company can benefit by General Electric's Simplified Replacement Plan. Brown Shoe Company does this in their beautiful new St. Louis offices. By changing their 5,000 lamps every 18 months, they save about \$500 a year. At McDonnell Aircraft, they replace over 30,000 G-E Lamps regularly with a reported yearly savings of \$7,500! On the other hand, the owner of a filling station in Burlington, Vermont, replaces his few lamps yearly and he saves, too. Naturally his dollar savings are of secondary importance to his savings in time and annoyance.

LET G-E's GROUP RELAMPING PLAN CUT YOUR COSTS.

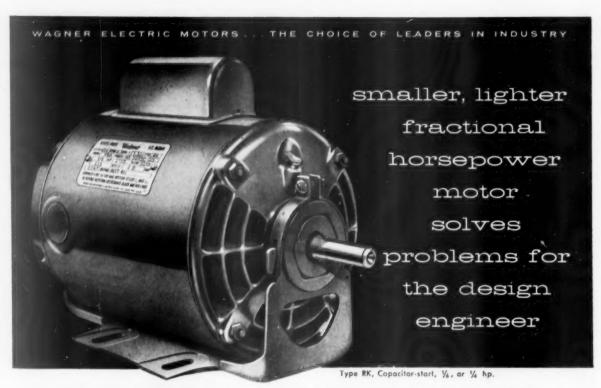
Since one-at-a-time lamp replacement adds up to a big expense, it's easy to make substantial savings by taking advantage of the unform performance of G-E lamps. Early burnouts are avoided. Actual results show that 99 out of 100 General Electric fluorescent lamps will still be burning after a year's service in single-shift plants.

GET THE WHOLE STORY on G-E's Simplified Lamp Replacement Plan. Write for the booklet, "Group Relamping Pays Dividends"—General Electric Company, Large Lamp Dept. P-5, Nefa Park, Cleveland 12, Ohio.

Progress Is Our Most Important Product

GENERAL (ELECTRIC

For More Information Circle No. 807 on Inquiry Card-Page 17



the WAGNER "48"

Here's the 48 frame motor you've been looking for! The Wagner "48" capacitor-start motor with either resilient or welded rigid base. You get the standard 48 frame size, with from three to eight pounds less weight per motor than previous models of the same hp ratings!

The Wagner "48" is rugged enough to permit direct mounting, compact enough to fit in tight spots, will

operate efficiently when mounted at any angle. Through ventilation assures cool operation that adds to motor life.

If you would like to test the Wagner "48", one of our field engineers will be glad to furnish a sample motor. Contact the Wagner Branch near you or write to the factory.



ALL ANGLE OPERATION. You can mount the Wagner "48" at any angle. A new lubrication system assures positive protective lubrication in any position.

EASY TO CONNECT. Just loosen one screw for access to terminal board. EASY TO SERVICE . . . no need to disconnect leads when removing endplates.

ALSO AVAILABLE IN SPLIT-PHASE TYPE. The Wagner "48" is also furnished in split-phase type, with resilient or rigid base in ratings of 1/6, 1/4, and 1/5 hp.

Electric Corporation
serving industry since 1891

BRANCHES AND DISTRIBUTORS IN ALL PRINCIPAL CITIES

Wagner Electric Corporation
6360 Plymonth Ave., St. Louis 14, Mo., U.S.A.

ELECTRIC MOTORS . TRANSFORMERS . INDUSTRIAL BRAKES . AUTOMOTIVE BRAKE SYSTEMS - AIR AND HYDRAULIC

For More Information Circle No. 808 on Inquiry Card-Page 17

260

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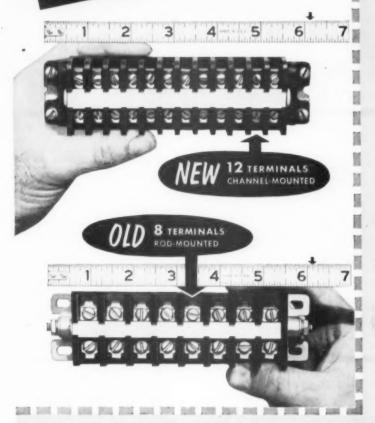
PURCHASING

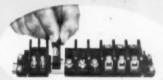
50% MORE TERMINALS IN THE SAME SPACE!

THE REAL THE PARTY.

SQUARE D's NEW TERMINAL BLOCKS

MORE FLEXIBILITY, TOO!





NOTICE (above) how little space is required to remove or add a Square D channel-mounted terminal block to the completely assembled unit. Especially important for a quick change when an additional terminal must be inserted into grouping.

all sizes can be mounted on same channel...25 ampere pressure wire connectors, 25 to 50 ampere box lugs ...all can be interlocked together. Terminals in kit form to "do-it-yourself" or factory-assembled to standard specifications.



SEE (below)...there is only one perforated channel required for either weld or screw-on mounting...available in standard lengths that can be cut "on the job" to fit any length requirement. Eliminates stocking various sizes.





or write for Bulletin which covers details on Channel-Mounted Terminal Blocks. Address Square D Company, 4041 North Richards Street, Milwaukee 12, Wisconsin.



NOW...EC&M PRODUCTS ARE A PART OF THE SQUARE D LINE

SQUARE D COMPANY



CASE HISTORIES



Removable Motor Base Permits A 12% Savings

In previous door-operator designs, the Barber-Colman Company was forced to manufacture heavy mounting brackets to hold the motor, which increased both manufacturing and assembly costs. General Electric's removable-base enabled them to spot-weld the motor base directly to the operator frame, cutting the over-all product weight and saving on assembly time. The all-angle sleeve bearing design also enabled the company to mount the motor shaft-down without sacrificing lubricating or performance qualities which meant in all, a 12% savings in manufacturing costs.

CIRCLE NO. 251 ON INQUIRY CARD-PAGE 17



Five Motors with Long Life Chosen for Electronic Computer

An inside view of the Burroughs Datatron shows that five Bodine Type N motors are used. The ElectroData Division of Burroughs felt that dependability and reproductible performance were paramount requirements in the selection of the motor to be used. The Bodine motors are all part of the Datatron's vacuum column drive which gives stable strain-free tape movement with 6 ms start/stop time.

CIRCLE NO. 252 ON INQUIRY CARD-PAGE 17



40¢ per Unit Saved by Using A Lighter-Weight Motor

The Decora Manufacturing Company completely redesigned its single-piston direct-drive compressor by applying 50% lighter-weight General Electric Motors. Decora has reduced total sprayer shipping weight from 38 to 30 pounds. The result was a savings of 40 cents per unit on an average shipment to Chicago, Illinois from the Emeryville, California plant.

CIRCLE NO. 253 ON INQUIRY CARD-PAGE 17

in buying equipment, consider...



Motors



Pumps



Texropo Drives



Control

LOW lifetime cost

The cost of equipment you buy does not end with purchase price. Cost stretches over the entire lifetime of your purchases. It goes up with every shutdown, every maintenance stoppage. Cost stays down when you buy quality. And quality means Allis-Chalmers.

Something extra goes into the full line of Allis-Chalmers control, motors, pumps, and *Texrope* drive equipment. We call it "quality-craftsmanship." It means long-run dependability; it means the real cost of A-C products stays low.

Find out more from your A-C district office or distributor, or write Allis-Chalmers, General Products Division, Milwaukee 1, Wisconsin.



ALLIS-CHALMERS



"On a low voltage situation,

Fusetron dual-element Fuses

opened and warned us of the need

for a larger transformer"

HERMAN BOND, PRES.
ACME ELECTRIC CO., DENVER, COLO.



Here's Mr. Bond's own story of how Fusetron fuses helped solve the low voltage situation.

"A flock of Fusetron dual-element fuses blew one afternoon at the Duffy Bottling Works several weeks after we had completed changing the entire plant to this type of fuse in an effort to eliminate extreme heating in switches and to get more dependable protection.

"Before putting the circuits back in operation we wanted to find out what had caused the Fusetron fuses to open.

"On checking, we learned that a severe voltage drop occurred whenever the plant was in full operation. The trouble was due to the transformer being too small to keep the voltage at its normal value of 220 volts.

"To prevent the trouble recurring, a larger transformer was installed. Since then, they have had no more low voltage difficulty.

"By opening and warning of the need for a larger transformer, Fusetron fuses not only saved Duffy Bottling Works the expense of possible motor burnout, but also prevented costly slowdowns in their production." You too, can save money throughout the plant by using Fusetron fuses . . . They Provide 10 Point Protection 1. High interrupting capacity -protect against short circuits. Have proven on tests to open safely on circuits set to deliver in excess of 100,000 amperes. 2. Protect against needless blows caused by excessive heating-lesser resistance results in cooler operation. 3. Protect against needless blows caused by harmless overloads. 4. Provide thermal protection—for panels and switches against damage from heating due to poor contact. 5. Protect against waste of space and money—permit use of proper size switches and panels. 6. Protect motors against burnout from overloads. 7. Give DOUBLE burnout protection to large motors—without extra cost. 8. Protect motors against burnout due to single phasing. 9. Make protection of small motors simple and inexpensive. 10. Protect coils, transformers and solenoids against burnout.

DON'T RISK LOSSES! One lost motor . . . one needless shutdown . . , one destroyed switch or panel . . , one burned out solenoid . . . may cost you far more than replacing every ordinary fuse with Fusetron dual-element Fuses. Write for Bulletin FIS.

FOR LOADS ABOVE 600 AMPS.—USE BUSS HI-CAP FUSES to coordinate your electrical circuits.

On 600 volts or less, BUSS Hi-Cap fuses have an interrupting capacity sufficient to handle any fault current regardless of system growth.

They can be coordinated with Fusetron fuses on feeder and branch circuits to limit fault outages to circuits of origin. Write for Bulletin MCS.

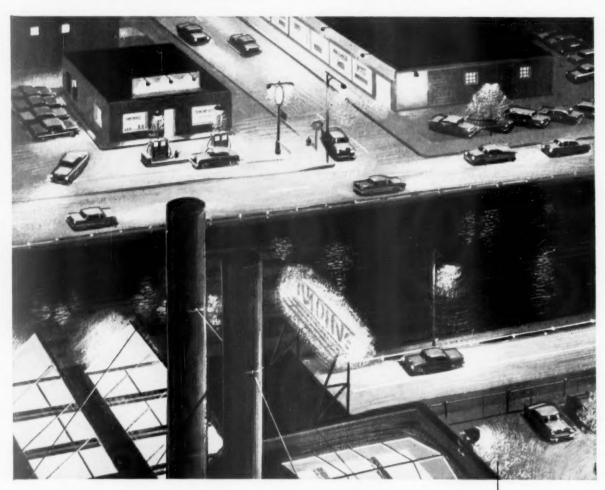
BUSSMANN MFG. CO. (Div. of McGraw-Edison Co.)
University at Jefferson, 5t. Louis 7, Mo.

Play Safe! install FUSETRON dual-element FUSES and BUSS Hi-Cap FUSES throughout entire Electrical System!





INDOORS AND OUT LAMPS ARE IN SERVICE THAN



They're Job-Tailored to give you the most mercury light for your money

From Westinghouse developments like those below, you can see how the built-in quality of Westinghouse Mercury Lamps gives more light when new, more light throughout life, as well as guaranteed long life.

- · Thorium-Coated Electrodes provide HIGHER LIGHT OUTPUT
- · Molybdenum Ribbon Seals assure Greater Dependability, Longer Life
- · Hi-Temp Life-Time Bases eliminate Installation and Service Breakage
- Weather Duty* construction with special "hard" glass. Outside installations can't be harmed by snow, sleet or rain even when lamps are installed without protective coverings... or inside by fumes, or dripping condensation.

For recommendations for using the most complete line of mercury lighting—for the right kind of lamp for the job—call your nearest Westinghouse lamp supplier or write: Westinghouse Lamp Division, Dept.P-5, Bloomfield, N. J.

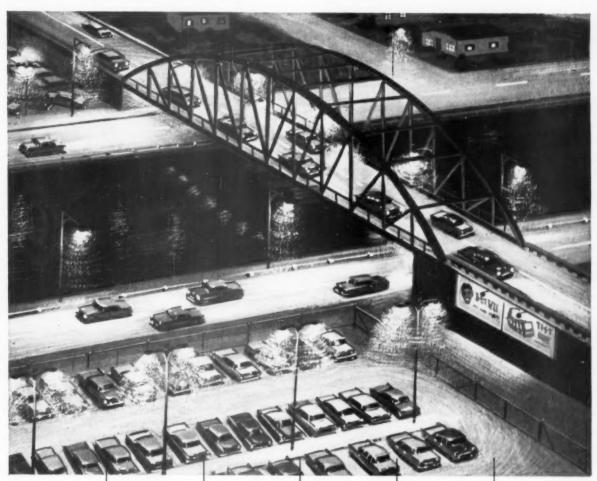


YOU CAN BE SURE ... IF IT'S Westinghouse



8-H18: 700 W. Fiverescent-Mercury Lamp. Color-corrected Golden-White light for general purposes, flood and street lighting. A Westinghouse exclusive.

MORE WESTINGHOUSE MERCURY ALL OTHER BRANDS COMBINED





E-H1: 400 W. Mercury Lamp. Most widely used today. For interior and street lighting. E-H1-Y: Built-in clear yellow filter warns of road hazards.



A-H12-WD; A-H15-WD:1,000W.Weather Duty Mercury Lamp. Recommended for all interior and exterior applications. Widely used for industrial high bay lighting. Weather proof for heavy duty



A-H1-WD: 400 W. Weather Duty Mercury Lamp. Recommended for general purposes, flood and street lighting. Weather proof for heavy duty service.



P-H1: 400 W. Semi-Reflector Mercury Lamp. Cotor-corrected Golden-White for all interior uses, Ideal for areas of high dust concentration.



C-H12-WD; 8-H15-WD:1,000W.Weather Duty Fluorescent-Mercury Lamp. Color-corrected Golden-White light for general interior and floodlighting. Weather proof for heavy duty service.



J-H1; 400 W, Fluerescent-Mercury Lamp. Golden-White light is color-corrected for interior and street applications. J-H1-Y: Rich, yellow light to identity road hazards. Ideal substitute for sodium installations.

CASE HISTORIES



Use of Magnesium Cuts Cost of Shipping Motors

The use of lightweight die cast magnesium in the construction of fractional horsepower motors reduced weight to such an extent that customers are realizing savings up to 6¢ per motor on shipments from the Redmond Company plant in Michigan to California. The Redmond Company recently incorporated a Tri-Flux feature which enables customers to obtain lighter, more compact motors producing higher horsepower per pound than ever before possible.

CIRCLE NO. 246 ON INQUIRY CARD-PAGE 17



Fuses Hold Up 4 Years under Capacity Load

The Northwestern Glass Company found that ordinary 500 amp. renewable fuses were blowing frequently in a 1000 amp. switch that controlled a line of motors ranging in sizes up to 150 hp. A study of the situation indicated that harmless surges were causing the fuses to blow. Northwestern figured that the long time-lag of Fusetron dual-element fuses might correct the trouble. Installed in 1953 the same fuses are still in service despite being loaded to capacity 24 hours a day, 7 days a week.

CIRCLE NO. 255 ON INQUIRY CARD-PAGE 17



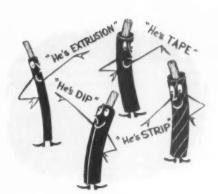
Unit Distributes Light at Substantial Reduction

In the Bath Iron Works 28 footcandles of evenly distributed illumination are produced by the Smithcraft ALS factory lighting unit. This is in contrast with the often inadequate illumination produced by incandescent units maintained at this height. It contrasts also with the highly specialized high cost fluorescent equipment sometimes used in such installations. As far as operating costs are concerned, the approximate cost with all fixtures lighted is estimated at \$1 per hour.

CIRCLE NO. 256 ON INQUIRY CARD-PAGE 17

Hearken to this woeful fable of the man who bought a "bargain" cable







A. C. Current, a budding E. E. Bought cables from many a source But he didn't take time to consider, you see That some last longer than others, of course.

For some circuits any insulation will do-For others, just one type is proper But Okonite he never consulted, we rue. As to which one should cover his copper.

It seems Mr. Current mistakenly thought (Indeed, 'twas a total delusion) That Okonite cable would cost him a lot Whether made by strip, tape, dip or extrusion

Only Okonite insulates cables all ways So our prices are not always highest And thus when you ask us what cable to use Our recommendation's unbiased.

The price does differ, depending on methods (The type insulation and how it's applied) The proof of the pie is in service records . . . Which we would have gladly supplied.

But A. C., in order to make things look good Chose a cable he thought was a "buy" It lasted, we hear, no more than a year, Then blew him and his factory sky-high.

We hate to relate this horrible fable But here is a moral for all: If you should desire a superior cable By extrusion or strip . . . by taping or dip Just write us a letter, or call.

No matter what insulation or method of application you want (and we use them all) you'll get the best of its kind from Okonite. For a frank, down-to-earth discussion on cable insulating methods, write for Bulletin PG-1106, The Okonite Company, Passaic, N. J.



where there's electrical power . . . there's OKONITE CABLE



RED JACKET MANUFACTURING CO. "[et pumps cost less to ship"



LENNOX INDUSTRIES INC.
"we just install them and forget them"



W. M. WELCH MFG. COMPANY
"eliminated heavy mounting frames"



K & S MANUFACTURING COMPANY "stands up under roughest handling"



ANTHONY MACHINE & ENG. SERVICE "only motor versatile enough for us"



THE TRANE COMPANY
"reduced product weight nearly 8 lbs."



RUTHMAN MACHINERY COMPANY
"more compact, yet full-powered"

Jears Ahead MOTOR



ALBERTSON & CO.—SIOUX TOOLS
"lighter, smaller—with power to spare"



MODINE MANUFACTURING COMPANY "dependable—in operation and delivery"





BARBER-COLMAN COMPANY
"cut manufacturing costs 12%"



AUTO-NAILER COMPANY
"All-angle mounting cuts design costs"



G. C. BREIDERT COMPANY
"as quiet as it is dependable"



LANCASTER PUMP & MFG. CO.
"G-E motors help sell our pumps"



BAR-BROOK MFG. COMPANY
" 'no re-oiling' feature rates high"



SOUTH BEND LATHE COMPANY
"top quality at competitive prices"



TEMCO, INC.
"light weight cut shipping costs"

16 More Companies Say...

LESS COSTS, MORE SALES with General Electric fhp motors

Yes—16 more manufacturers, like yourself, have reported on the cost-savings and sales-increases they've realized by incorporating General Electric "Years-ahead" motors into their products.

They are representative of the thousands of companies who have realized similar benefits—adequate proof that this General Electric flp motor can save you money—can make your product more saleable.

And no wonder! The G-E "Years-ahead" motor incorporates a number of advanced design features to give you longer motor life, unsurpassed versatility, and a lighter, smaller, more streamlined design to match your own modern product... for example—moisture resistant Mylar* polyester film insulation; dependable, all-angle sleeve bearings; doubled lubrication life; removable, rotatable cradle base; and many others.

To find out how you can take greater advantage of these G-E motor benefits in your own product, contact your nearby General Electric Apparatus Sales Office, or write to General Electric Company, Section 702–30, Schenectady, N. Y.

*Registered trade mark of Du Pant Company.

GENERAL ELECTRIC



Cost Cutting Catalogs

All Types of Instrument Transformers

90 pages in length, Bulletin GEC-1028B is a complete instrument transformer buyer's guide. Included are prices, ratings, ASA accuracy classifications, weights and dimensions, and catalog numbers on current and potential transformers. Photo caption technique permits easy reference to all pertinent data.

General Electric Co.

Circle No. 254 on Inquiry Card-Page 17

All Types of Insulation

An illustrated, fully indexed 32-page catalogue, No. 20, covers electrical insulations for repair and maintenance of motors, generators and electrical and electronic equipment. Photos accompany text.

Insulation Manufacturers Corp.

Circle No. 257 on Inquiry Card-Page 17

Circuit Breakers for Protection

Bulletin 5042 provides descriptive and application information on a complete line of current limiting circuit breakers. It shows how protective elements in the breaker are coordinated to provide complete protection on overloads, short circuits, etc.

I-T-E Circuit Breakers Co.

Circle No. 258 on Inquiry Card-Page 17

Connectors for Wide Application

Data on electrical connectors in readily usable form is presented in "Connector Reference File." Illustrated with photos and drawings, the file includes descriptions of connector applications and design features. Covered are live line hot taps, transformer ground and stud connectors, etc.

Burndy Corp.

Circle No. 259 on Inquiry Card-Page 17

1800 Incandescent Lights

A new lighting "Guide Book" covers more than 1800 types and sizes of incandescent lamps. The three-color, 24-page booklet features sections on the characteristics of incandescent lamps, structure and a discussion of filaments, bulb sizes, glass types and finishes, and types.

Sylvania Electric Products Inc.

Circle No. 260 on Inquiry Card-Page 17

Motor Brushes for Electric Tools

Catalog No. 83-C describes 250 different type brushes for electric tool motors. It is organized for ease of brush selection and positive identification is provided for each brush through both illustration and type and model number. Brushes cover 2714 applications.

The Ohio Carbon Co.

Circle No. 261 on Inquiry Card-Page 17

Motors for Original Equipment

Bulletin "S" provides information on 240 fractional horsepower electric motors available from stock. Included are universal types (both a-c and d-c), single phase types, and three phase types. Torque ratings are available up to 350 in lbs.; horsepower range is from 1/2000 to 1/6.

Bodine Electric Co.

Circle No. 262 on Inquiry Card-Page 17

Packaged Speed Variators Boost Output

A packaged speed variator consists of three basic components in one compact drive: a-c to d-c motor-generator converter, a d-c motor and operator controls. Cost cutting applications of variators available in sizes ranging from 1 to 200 hp are described in Bulletin GEA-6127.

General Electric

Circle No. 263 on Inquiry Card-Page 17

The Right Switch Works Best

Catalog 62-b covers "basic switches for industrial and commercial applications." In its 28 pages are listed general purpose switches, single actuated dual switches, sealed switches, high sensitivity switches, maintained contact switches, split contact switches, and many others.

Micro Switch

Circle No. 264 on Inquiry Card-Page 17

Sometimes "Specials" Save

Sometimes it doesn't pay to use a standard motor in a product. A special motor will permit simpler design and reduce total cost. Torque motors are particularly useful for many applications. Various special types and the products in which they're used are included in an 8-page bulletin.

The B. A. Wesche Electric Co.

Circle No. 265 on Inquiry Card-Page 17

VALUE ANALYSIS SHOWS

DYNAPRENE

PROVIDES TRUE ECONOMY

True economy lies in buying that which serves you best at a reasonable price. WB DYNAPRENE Portable Cord will stand the test of value analysis as well as the test of service.

Made by the continuous vulcanizing process to rigid specifications,
Whitney Blake neoprene jacketed DYNAPRENE gives long unbroken
premium service at lower than premium prices.



Write TODAY for this complete catalog . . . no charge, of course.

DYNAPRENE FEATURES

HIGH FLEXIBILITY
LONG FLEX LIFE
STRONG — TOUGH
STANDS UP UNDER
SHOP CONDITIONS
FLAME RESISTANCE

Well Built Wires Since 1899



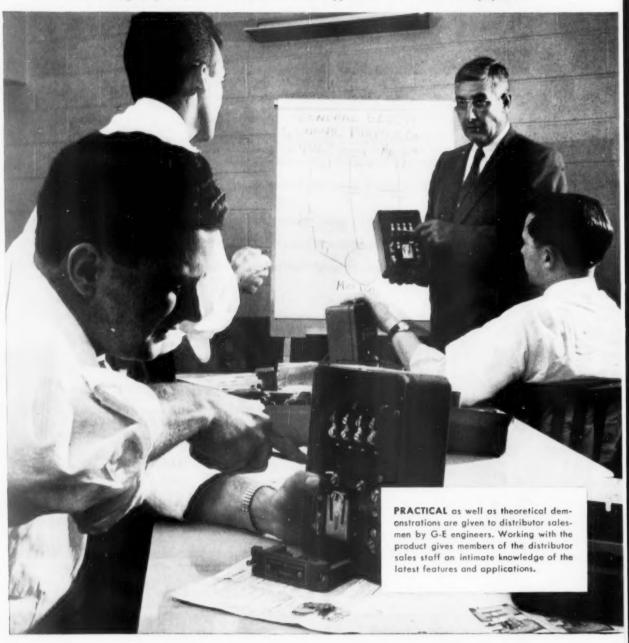
WHITNEY BLAKE COMPANY

NEW HAVEN 14, CONNECTICUT

For More Information Circle No. 817 on Inquiry Card-Page 17

How General Electric Apparatus Distributors are trained to help you

Since 1953, more than 1800 distributor salesmen have been trained at General Electric schools to give you skilled assistance in the application of electrical equipment



When you buy electrical equipment, you've got a right to expect expert assistance in its application and use. The electrical manufacturing industry has made such rapid strides in new product designs that many users need help in realizing all the benefits a piece of modern apparatus can give. To make sure you get the right equipment and service, distributors regularly send their salesmen to General Electric Training Schools. To date, more than 1800 men have graduated from these schools. Several hundred more will attend this year.

General Electric keeps Factory Training Schools operating on a regular schedule. To these schools -held at various manufacturing plants and conducted by professional engineers—come distributors and their salesmen from all over the country. They receive intensive courses in the proper selection and application of motors, control, transformers, meters, instruments and other types of electrical equipment. They learn how and why the product is made the way it is -get first hand answers to every conceivable question.

In addition, Field Training Courses are taught by General Electric Sales Engineers at distributor houses throughout the country. The courses are designed to keep salesmen upto-date on the latest developments in electrical apparatus and supplement the work of the factory training schools. Wherever possible they



A FIRST HAND TOUR of your plant by the distributor can often bring on-thespot money saving suggestions.



UP-TO-DATE PRICES and technical information are quickly available from the distributor's catalog library.

include on-the-spot demonstrations of new equipment. Adequate time is provided so that salesmen can hold group discussions of specific problems that they have encountered in the field. As a result of group discussions and specific casehistory reviews, today's distributor salesmen can keep their customers aware of the latest trends in many fields, the accurate up-to-the minute product facts and application information thus obtained make the distributor salesman even more helpful to you.

The distributor's professional training is reflected in the service you get when you buy G-E apparatus. For example, a tire manufacturers' nylon cord plant found its powerfactor was only 76% -a low that boosted power bills way out of line. Cause was found to be an old synchronous condenser. The distributor salesmen who helped with the power-factor check recommended substituting a bank of capacitors along each production line. Result: lowest cost in history per pound of nylon produced - power bills down \$300 in one month. The capacitors will pay for themselves in 12 to 15 months. Unusual? Not at all. The distributor's continuous training makes cost saving recommendations like this commonplace.

The General Electric Distributor works closely with manufacturers, architects and contractors. He can provide the latest price information, technical specifications and installation information for bid and estimate purposes. Should special problems arise, he acts as a reliable liaison between you and the sources of information which General Electric places at his disposal.

To make the most of your distributor's services have a talk with him; let him show you how to capitalize on his training, experience and facilities. If you don't know your distributor's name, write National Manager, Distributor Sales, General Electric Company, Schenectady 5, N. Y. 340-34

These Are Some of the Products Sold by General Electric **Apparatus Agents and Distributors**

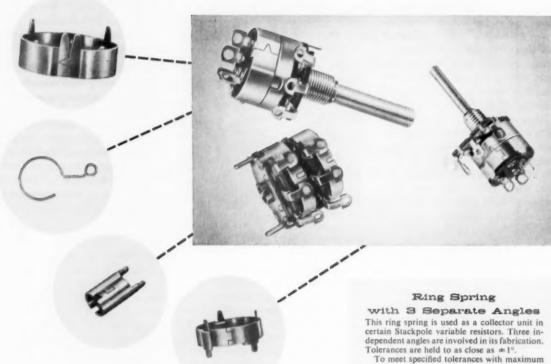
- fractional-hp motors
- 1-5 hp integral motors
- gear motors 1/4 to 100 hp
- · distribution and power transformers
- instrument transformers
- arresters
- · CLF fuses
- cutouts
- · push buttons
- manual and magnetic starters
- e relays and solenoids
- · electric instruments
- time switches
- heaters and soldering irons
- watthour meters and sockets
- air circuit breakers
- switchgear
- · rectifiers
- · capacitors
- substations
- · Inductrol* voltage regulators

*Trade-mark General Electric Co.

Progress Is Our Most Important Product



GENERAL (SA) ELECTRIC



Formed metal parts

from Sylvania help assure inherent quality of STACKPOLE variable resistors

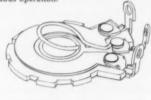
Stackpole designs and manufactures components to meet high standards of quality in electrical-electronic products.

For precision and uniformity in the volume production of critical metal parts used in variable resistors, the Stackpole Carbon Company relies on Sylvania's Parts Division.

Many leading manufacturers, large and small, use Sylvania's 4-way service for high volume production of close tolerance parts. Let us submit a quotation on your specifications calling for custom-molded plastic parts... plated or clad specialty wire... electronic components... or formed metal parts.

For information on our facilities write for free copy of: "Portfolio of 4-way Service to Designers."

To meet specified tolerances with maximum economy Sylvania de eloped special dies which accomplish flat forming and bending as a continuous operation.





Formed Switch Covers and Shaft

These are typical metal stampings used in certain Stackpole variable resistors. Sylvania's experience and know-how in fabricating small parts result in high volume production at low costs. Hollow shaft is carefully formed to hold diameter within $\pm .0025''$. Dovetail on large cover was designed by Sylvania to avoid nestling and tangling of parts during handling.

SYLVANIA

PARTS DIVISION

Sylvania Electric Products Inc., Parts Division, Warren, Pennsylvania

LIGHTING . RADIO . ELECTRONICS . TELEVISION . ATOMIC ENERGY



METAL

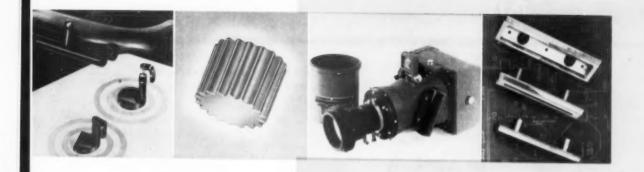


BLECTRONIC

4-way service from one source

See us at booth 110 at the Design Engineering Show.

For More Information Circle No. 819 on Inquiry Card-Page 17



Case Histories
of
Value Analysis
in

Component Parts



CASE HISTORIES



Aluminum Impact Extrusion Lowers Manufacturing Costs

A grease gun for gasoline-driven equipment is using for its major component a seamless aluminum impact extrusion, produced by Sun Tube Corporation. The barrel, shoulder and neck of the gun are manufactured all in one piece by an extrusion press. The only operation that the gun's manufacturer, Adams Grease Gun Co. of Brooklyn, N. Y. finds necessary is threading of the neck to occommodate the coupling. Using the impact extruded member effects savings many times the cost of machining the parts from bar stock.

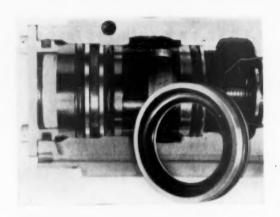
CIRCLE NO. 266 ON INQUIRY CARD-PAGE 17



Failure Rate Slashed With Teflon Hose

A leading manufacturer of air conditioners, the Kennard Corporation of St. Louis, Mo., dehydrates all volatile refrigerant-carrying coils after fabrication and prior to shipment to customers. The process bakes the coils for six hours under a 700-micron vacuum in an oven heated to 280 F. Previously, copper tubing was used to connect the coils to the vacuum pump manifold. The copper tubing soon fractured in use and had to be constantly replaced. Two years ago, Kennard replaced the copper tubing with a Teflon hose made by Resistoflex Corp. It is still in use.

CIRCLE NO. 267 ON INQUIRY CARD-PAGE 17



Rubber-to-Metal Bonding Cuts Weight, Over-all Costs

Chandler-Evans Co. of West Hartford, Conn., was faced with the problem of having to reduce the weight and cost of an after-burner control, which it manufactured. A rub-ber-to-metal bonding process, "Permadizing," developed by the Stillman Rubber Co. effected this. Prior to its use, CECO engineers anchored the valve seat, designed to shut off fuel flow in the control, by drilling eight holes in the stainless steel to form a mechanical bond. Now the valve seat is anchored by the rubber-to-metal bonding to reduce weight 50% and eliminate several manufacturing operations.

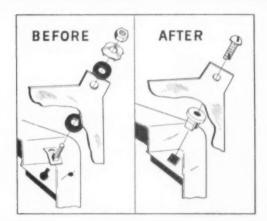
CIRCLE NO. 268 ON INQUIRY CARD-PAGE 17



Brass Forging Lowers Cost 20%, Ends Rejects

When Automatic Sprinkler Corp. of America first developed its concealed fire control system, bronze sand castings were used for the body of the sprinkler. To meet required tolerances, extensive machining was necessary. In addition, many of the castings failed the water pressure test due to porosity. The company decided to experiment with Revere brass forgings and as a result machining costs were substantially reduced, and rejects due to porosity were eliminated. The cost saving amounted to 20%.

CIRCLE NO. 269 ON INQUIRY CARD-PAGE 17



\$2500 Saving on Fastener Cost

General Electric formerly used a complicated five-piece assembly to mount the food liner of a refrigerator on the outer liner of the box. Fastex Div. of Illinois Tool Works was called in and suggested use of its nylon self-retaining nut, called Plasti-Grommet. This grommet pops into its hole with thumb pressure and a type 25 thread cutting Sems spreads the prongs, creating a positive fastening. Using four grommets per refrigerator, GE saves \$6 per thousand on parts alone and assembly is faster.

CIRCLE NO. 270 ON INQUIRY CARD-PAGE 17



Fewer Parts Needed Because of Diecasting

A good example of the savings that are possible through use of diecastings is the Craftsman 5½ in. electric hand saw made by Signal Electric Div., King-Seeley Corp. Complexity of the shapes possible with the diecasting process has made it possible to produce the handsaw with a minimum of parts. If the saw were made by a different method of fabrication, many more individual parts would be required. Also, diecasting eliminates the need for elaborate machining.

CIRCLE NO. 271 ON INQUIRY CARD-PAGE 17





1/2 JOB PAK contains 4 inner cartons each containing 1/6 the contents of a keg.



IOB-PAK - contains only 2 inner cartons, each containing 1/6 the contents of a keg.



Standard Inner Carton — containing 1/6 the quantity of a keg is the basic unit of the JOB PAK system of pack-aging. It is also used as a distributor package.

*SPLITS — (1/2 Size Inner Carton)
A few of the smaller sizes of M-C lock washers
are now available in this package.

Write for tables showing how JOB-PAK divides standard bulk quantities into convenient shelf-stock packages, labeled and counted.

the modern bulk package for

Lock Washers

SAVES MONEY 7 WAYS

- . JOB-PAK eliminates counting and weighing
- . JOB-PAK prevents spilling, and mixing of
- JOB-PAK facilitates storing. Inner Cartons can be stacked in bins or on shelves
- JOB-PAK reduces handling expenses-each inner carton weighs less than 33 lbs. . . . easy to lift or carry
- . JOB-PAK speeds up physical inventory
- JOB-PAK simplifies stock distribution
- JOB-PAK provides re-usable containers

FREE! Miniature JOB-PAK...

This Home Assortment of Plated Lock Washers in Miniature JOB-PAK will be sent at your request, on your company letterhead, without cost to you.



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Manufacturers of a Complete Line of Lock Washers in all Standard and Special Sizes: Steel, Non-Forrous and Plated; in Bulk, Conven-tional Packages, Special Packages, Coin Pak and Job Pak.

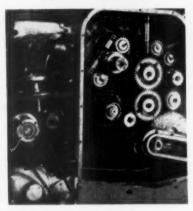
For More Information Circle No. 820 on Inquiry Card-Page 17



BUY AMERICAN... Tubular and Split Rivets...

For More Information Circle No. 821 on Inquiry Card-Page 17

Formsprag Clutches **Double Production**



Improved glue consistency is maintained on the Equalok Folder-Gluer corrugated box machine by using two Formsprag clutches, thus producing boxes twice as fast and with lower rejection rates than with previous systems, a major box manufacturer reports. When the main power source is idling or completely shut down, a gear motor transmits power through an overrunning clutch to rotate the jack shaft. The jack shaft in turn caused a second chain drive to rotate the glue mechanism. During this portion of the cycle, the main drive of the machine is stationary because a second clutch is freewheeling. During normal operation, the gear train drives through the second clutch and causes the second roller chain to continue to rotate the glue mechanism.

Circle No. 272 on Inquiry Cord-Page 17

Removable Car Bearing **Lowers Maintenance Costs**

A removable freight car journal bearing developed by SKF Industries, Inc., means reduced maintenance cost for the user by permitting fast inspection and quick repairs without the need of special equipment. For inspection purposes, the outer race assembly of the bearing is easily dismounted by hand, while the inner race and enclosure collar, which are fitted to the axle, remain in place. The bearing has a self-lubricating seal.

Circle No. 273 on Inquiry Card-Page 17

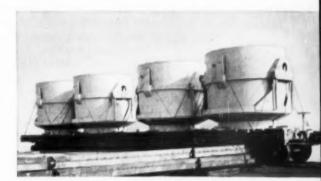
For More Information Circle No. 822 on Inquiry Card—Page 17→ PURCHASING

Fabricating Facts!

McGREGOR-MICHIGAN Brochure Describes Diversified Facilities and Production

In this compact 12-page brochure you'll find valuable information on McGregor-Michigan's equipment and typical steel plate fabrications. It shows scenes in our new 30,000 square foot Heavy Fabricating Plant and our original Rivard plant. It describes some of our new equipment including a 650 ton press brake and our 600 ton "Bulldozer" horizontal forming press capable of forming heavy beams or solid sections. In addition you'll find clear illustrations of steel plate fabrications for the primary metal producers-ladles, buckets, hooks, doors, water-cooled roof rings and others-and equally interesting chemical and petroleum processing equipment-ASME Code vessels, autoclaves, heat exchangers, kettles and tanks. Many of these assemblies run to 50 tons and over, in mild, stainless and alloy steels. Typical miscellaneous industrial fabrications shown are engine beds, bases for machines, jigs and fixtures, heavy-wall cylinders, foundry cupola shells, furnace casings, a self-propelled sewer tunnel shield and a heavy boom for a power shovel. The brochure also describes our plate warehousing and specialized surface treating services.

We would appreciate your including this informative booklet in your file of fabricating sources. Please send for a copy and the name of our representative nearest you or call direct for prompt service on any steel plate fabricating problem.



Clam shell charging buckets destined for leading West Virginia aluminum plant.



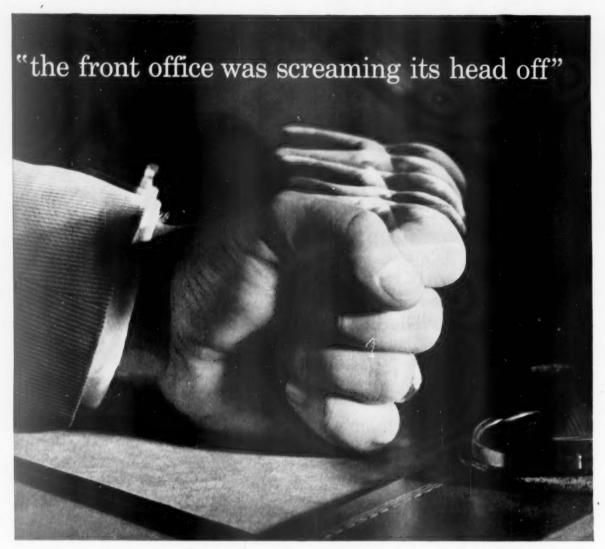


SINCE 1841

McGREGOR-MICHIGAN CORPORATION

5908 RIVARD + DETROIT 11, MICHIGAN TRINITY 2-2400

FABRICATING AND WAREHOUSING



Screw failures were driving the production chief wild. Parts spoilage was piling up—the front office was screaming its head off about zooming assembly costs.

What could be done? Fortunately, the P.A. knew the answer. "Bargain" fasteners bought at the urging of the cost accountant were causing the trouble. Solution—the P.A. called his local P-K distributor and placed a rush order for P-K Selftapping Screws. Screw failures stopped overnight. No more broken screw heads

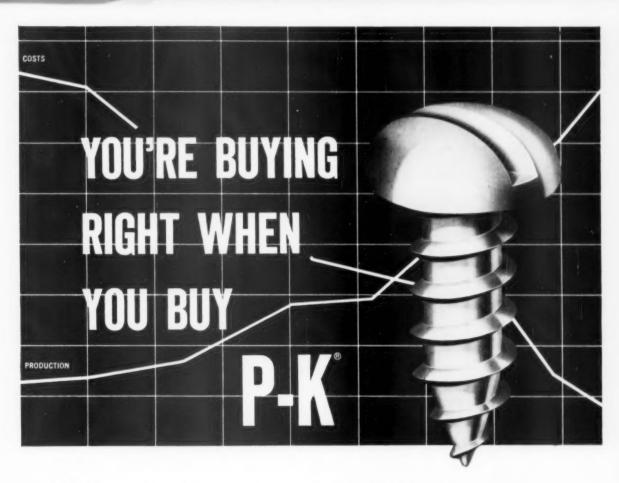
... no more stripped threads. Assembly costs dropped and production shot way up. All because the P.A. knew his business.

He knew the cost of a screw is just a fraction of the cost of using that screw in production. And because P-K screws offer consistently high quality and dependable uniformity, they cost far less to use. That's why more Purchasing Agents specify P-K Self-tapping Screws. They know . . . "if it's P-K, it's O.K."

PARKER-KALON DIVISION, General American Transportation Corporation
Manufacturers of Self-tapping Screws, Socket Screws, Screwnails, Masonry Nails, Wing Nuts and Thumb Screws

PARKER-KALON fasteners

Sold Everywhere Through Leading Industrial Distributors Factory: Clifton, New Jersey—Warehouses: Chicago, Illinois—Los Angeles, California



the Self-tapping Screw you order with confidence

Production's happy (no more screw failure headaches). The boss is happy (lower assembly costs)—and you're happy because you're sure you made a good "buy."

The truth of the matter is that P-K Self-tapping Screws actually cost your company far less in the long run. That's because high-paid assembly hands work faster, turn out more production with P-K screws on the job. Because P-K fasteners are manufactured to consistently high standards . . . they guard against parts spoilage, high reclamation expenses and hidden weaknesses that result in customer complaints.

You know you're getting the best when you order P-K Self-tapping Screws. Industry agrees . . . "If it's P-K, it's O.K."

PARKER-KALON DIVISION, General American Transportation Corporation

Manufacturers of Self-tapping Screws, Socket Screws, Screwnails, Masonry Nails, Wing Nuts and Thumb Screws

PARKER-KALON fasteners

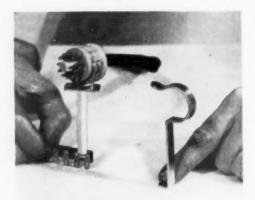
Sold Everywhere Through Leading Industrial Distributors
Factory: Clifton, New Jersey—Warehouses: Chicago, Illinois—Los Angeles, California

For More Information Circle No. 823 on Inquiry Card-Page 17

Component



SE HISTORIES



Redesigned Bracket Costs 41% Less

Redesign of a bracket used to hold two-way radio plugs on a chassis resulted in a cost saving of more than 40% for General Electric. Originally the bracket consisted of six parts which were assembled on a production line. Included were a spring steel mounting clip, stamped mounting plate, screw machined hex thread spacer, screw and lock washers. Cost was 11.4¢ per bracket. Engineers of the E. H. Titchener Co. redesigned the holder, making it a welded steel strip steel unit. The new bracket costs only 6.74-a saving of 4.7¢ each.

CIRCLE NO. 274 ON INQUIRY CARD-PAGE 17



Better Product-No Increase in Cost

Terminal pin insulators used on Mirro-Matic percolators which are manufactured by Aluminum Goods Manufacturing Co., were originally made of phenolic. It was realized that abuse of the percolator could loosen electrical connectors and cause arcing. Phenolic is also prone to absorb moisture when splashed, which increases the chance of insulator failure. Use of silicone-glass laminates manufactured by Taylor Fiber Co. eliminated these hazards. And, because of the higher physical strength of the silicone laminates low cost stampings could be used instead of expensive molded parts.

CIRCLE NO. 275 ON INQUIRY CARD-PAGE 17

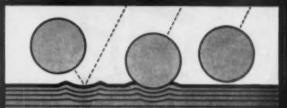


Production Costs Down 33% With Zinc Diecastings

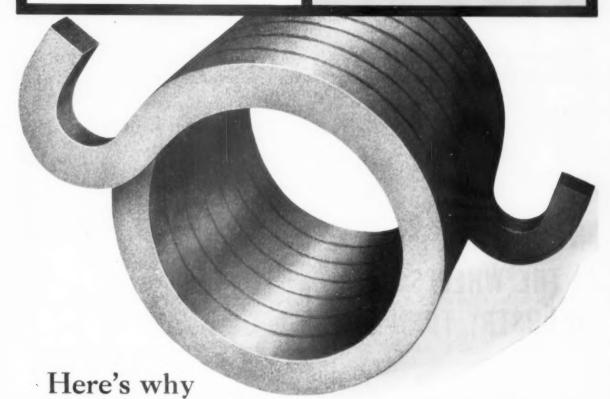
Costs were cut by one-third in producing this air pre-cleaner by having the base case made as a one-piece zinc diecasting. The unit was formerly made by fabricating sheet metal parts and welding them together, a costly process involving four operations and frequent production snags. Use of a zinc diecasting eliminated multiple welding, made assembly easier, and improved both strength and appearance of the product.

CIRCLE NO. 276 ON INQUIRY CARD-PAGE 17





WHAT SNOT PEENING IS. Thousands of round steel shot are projected against the spring surface at high velocity. They create a thin, cold worked layer that, in effect, causes the spring to operate at lower stress. What's more, shot peening erases tiny surface imperfections which could cause stress concentration points leading to spring failure.



CRUCIBLE FATIGUE RESISTANT SPRINGS

can withstand higher stresses

Every Crucible fatigue resistant spring for heavy-duty industrial applications is shot peened for higher strength and greater fatigue resistance. Crucible controlled shot peening imposes a negative stress on the surface that offsets positive stresses set up in service. Result: a truly fatigue resistant spring that outlasts conventional ones.

Good springs are a combination of proper design, skilled workmanship and fine steel. When you buy Crucible springs you employ a staff of proven designers and spring makers, and Crucible's years of experience in fine steel making—from ore to finished springs. Let an experienced Crucible spring specialist suggest the best fatigue resistant spring for your application. Or write for a copy of the "Handbook of Coil Spring Design." Spring Division, Crucible Steel Company of America, McCandless Avenue, Pittsburgh 1, Pa.

See us at N.A.P.A. Inform-A-Show Atlantic City, May 26-29 Booths 1, 2, 3, 4 CRUCIBLE

spring division

Crucible Steel Company of America

For More Information Circle No. 824 on Inquiry Card-Page 17



THE WHEELS OF INDUSTRY TURN ON





FREE VALUABLE BROCHURE

Shows you why U.S. Axle is your best source for precision-made special shafts.

THE U.S. AXLE COMPANY Pottstown, Penna.

Please send me the brochure on "U.S. Custom-Engineered Shafts."

Name

Firm

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City

Zone State



AXLE SHAFTS

Out in the field and inside the plant, wherever there's work to be done, you'll find labor-saving and time-saving machines. And wherever you find machines, you'll find U.S. Axle Shafts in every size and description, making their contribution toward smooth, trouble-free performance.

U.S. Axle Shafts are made of the finest alloy

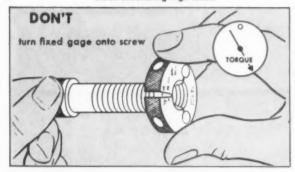
steel, heat-treated, and then shotpeened — the hardening process that makes U.S. Axles up to 5 times tougher — by actual torsion tests. We will be happy to use our 36 years of engineering skills to help you improve your product performance.

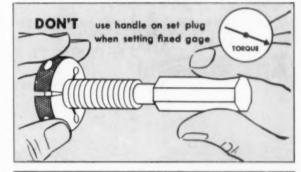


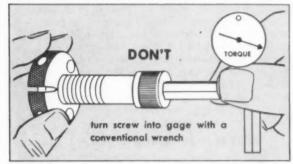
Call on U.S. AXLE for shafts for every application

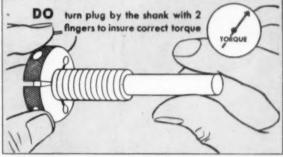
.. THE WORLD TURNS ON U. S. AXLES"

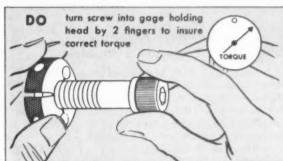
THE US AXLE COMPANY, INC.

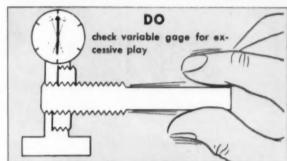












These illustrations from new SPS booklet show some of the do's and don'ts of gaging precision threads,

3A threads: what they are; how to gage them — new SPS booklet tells all

Threads made to Class 3A fit are the most precise in general use in industry. But you do not always get the 3A precision you specify. Because of many different gaging techniques that yield varying results, screws with threads well outside the Class 3A tolerance limits often pass inspection.

SPS has prepared a new booklet on this subject. It explains clearly what Class 3A threads are and the pros and cons involved in the widely varying gaging techniques in use today. It reviews the gaging of high and low limits of 3A threads, sampling techniques, and even the methods of gaging gages.

All standard Unbrako socket screw products fall within specified tolerance limits no matter what method is used to gage them. Leading industrial distributors carry complete stocks. Unbrako Socket Screw Division, Standard Pressed Steel Co., Jenkintown 31, Pa.

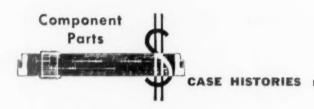


Form 2239, "Class 3A Threads: what they are; how to gage them." 16 pages, with many illustrations. Write for free copy today.

STANDARD PRESSED STEEL CO.









Three Bolts Do the Work of Four

Three bolts positioned 120 degrees apart around a common center will provide as stable a joint as the conventional pattern of four bolts arranged symmetrically, according to the Russell, Burdsall & Ward Bolt & Nut Co. Savings are achieved both in cost of fasteners and by the fact that fewer holes have to be drilled. Holding capacity lost in using fewer bolts is made up by using stronger ones. In terms of holding power, the stronger the bolt, the less it usually costs.

CIRCLE NO. 277 ON INQUIRY CARD-PAGE 17



Special Hose Assembly Answers Engineering Problem

By using a specially engineered hose assembly of fluorocarbon resin jacketed in stainless steel wire braid, Bede Products Corp. was able to solve a difficult designing problem in developing a new airless system of spray-coating paints, lacquers and other finishing materials. Because of the high temperatures and pressures involved, an important design consideration was the hose used to carry hot, pressurized solvents from heating system to spray gun. The hose assembly, manufactured by Resistoflex Corp., proved to be the answer.

CIRCLE NO. 278 ON INQUIRY CARD-PAGE 17



Rings Replace Bolted End Covers—Save \$1.48

Dalmotor Co., Div. of Dalmo-Victor Co., uses five Waldes Truarc retaining rings to achieve more compact design, eliminate parts and reduce machining operations. Savings on materials and labor over the old method amount to \$1.48 per unit in drive motors for airborne tape recorders. Two internal self-locking rings hold the winding to the armature before sealing and baking. Two standard internal rings lock the bearings in place, and one inverted external ring secures the end plate, locking the entire assembly.

CIRCLE NO. 279 ON INQUIRY CARD-PAGE 17

Adaptable Valve Made by Unusual Diecasting Technique



Char-Lynn Co. needed a valve that would protect its hydraulic equipment against excessive pressure for a range of operations up to 2000 psi and surge pressures reaching a possible 5000 psi. In addition, valve volume capacity had to range from 2 gpm to well above 12 gpm. The answer was provided by developing a special casting technique to facilitate coring of the aluminum die cast valve body. Coring is accomplished by first die casting a zinc core. The zinc core is then coated with an insulating material and positioned in the valve body die. Aluminum is then injected in the conventional manner. As the aluminum solidifies, the zinc core picks up heat and quickly becomes molten-causing a buildup in pressure. When the pressure reaches a predetermined point a die valve is opened, relieving the pressure and allowing the molten zinc to be discharged from the die. When the aluminum casting has solidified, it is removed from the die and the cycle is repeated.

Circle No. 280 on Inquiry Card-Page 17

You Need Only One Card to
Request Additional Information
on Any Item in This Issue.
Use the Reader Service Card
Page 17



THIS FLOW DIVIDER AND FUEL SELECTOR FOR A JET ENGINE was called the "monster" by its designers at the Cleveland Division of Parker Aircraft Company. Why? Because the dimensional requirements of its inner passages called for the most extreme quality control in the casting process.

Foundry engineers at Lebanon met the challenge, and selected the CERAMICAST Process as best suited because of the need for close tolerances, extreme smoothness in the internal passages, and the intricate coring.

During several months of development work, Lebanon engineered a special coring material to meet these requirements and developed special gauges for setting and holding the cores to meet the dimensional tolerances. Now in quantity production at Lebanon, this aircraft casting meets Class I X-ray inspection and operates under service conditions of high pressures and elevated temperatures.

LET US TAME YOUR "MONSTER" If your design project utilizes cast steel and requires a high degree of internal casting quality together with surface smoothness, close tolerances, and dimensional accuracy, CERAMICAST may provide definite quality and cost advantages. Let our engineers discuss the process with you and its applicability to your project. Write for CERAMICAST literature.

*CERAMICAST is a registered trademark



LEBANON STEEL FOUNDRY

148 LEHMAN STREET LEBANON, PENNSYLVANIA
CARBON, LOW ALLOY AND STAINLESS STEEL CASTINGS

For More Information Circle No. 827 on Inquiry Card-Page 17

CD F PLASTICS AND FIBRE

CDF PRODUCTS OF TEFLON

CDF produces an unequalled range of electromechanical parts of Teflon*—such as spaghetti tubing, glass-based laminates, flexible insulating tapes, sheets, rods, tubes, and finished parts. Now also available: cementable Teflon in supported and unsupported forms; can be cemented to itself and to most other materials with commercial adhesives. If you have a potential use for a product made from unsupported or reinforced Teflonfrom tapes to high-heat-resistant printed-circuit laminates—your CDF sales engineer is the man to call. Meanwhile, write for the new CDF Teflon Folders.

*duPont trademark for its tetrafluoroethylene resin

Heart of the best printed circuits-

CDF METAL-CLAD LAMINATES

Printed-circuit dependability begins at the base, and that's where CDF excels. Only CDF offers the combination of Teffon* resin and woven glass cloth for use under sustained temperatures of 200° C. In addition, CDF offers a full range of metal-clad laminates to meet every known demand of printed circuitry. High foil-bond strength withstands soldering heats, reduces assembly rejects. Full line of metal-clad grades—woven-glass and paper-base—with Teffon*, epoxy, and phenolic resins. Assembly costs go down when the job is done on CDF Metal-Clads! Write for CDF Metal-Clad Folder.

*duPont trademark for its tetrafluoroethylene resin

CDF DILECTO LAMINATED PLASTICS



for electrical and mechanical applications

DILECTO®, made in scores of grades, is the highest-quality laminated plastics made for rigorous duty in electrical, electronic, and mechanical equipment. Characteristics vary with the grade, so get the expert assistance of your CDF sales engineer.

Resins available in Dilecto.

Phenolic Epoxy Polyester Silicone Melamine Teflon*

Bases for Dilecto:

Woven Glass Fabric Woven Nylon Fabric Woven Asbestos

Fabric Woven Cotton Fabric Glass Mat Asbestos Mat Cotton Mat

Paper (either cellulose or asbestos)

CDF gives fast technical and delivery service on sheets, tubes, rods, or complete fabricated parts of Dilecto plastics. Write for Catalog D-55-8.

*duPont trademark for its tetrafluoroethylene resin



PLASTICS
FABRICATION
BY CDF SAVES
YOU TIME,
MONEY, WORRY

Let CDF's well-equipped machine shops assume the complete responsibility for delivery of plastics and/or fibre parts on time and as specified. No time is lost at CDF between raw-material production and final fabrication; in fact, special production runs are often scheduled to coincide with machining, to save the customer money on finished parts. When you let CDF do it for you, there's no problem of shortages, rejects, waste. Undivided responsibility pays off for you!



CDF HIGH-HEAT ELECTRICAL TAPES

Flexible insulating tapes for hand or automatic winding, made of silicone rubber, silicone varnish, Teflon*, and Micabond, with and without backings. Color identification—CDF tapes of Teflon are made in the standard RETMA identifying colors. Call your CDF sales engineer, or write for test samples.

*duPont trademark for its tetrafluoroethylene resin

PURCHASING NEWS



DIAMOND VULCANIZED FIBRE

keeps costs down

Known for over sixty years as the standard of quality in fibre, Diamond® Vulcanized Fibre is made in many grades (bone, fish-paper, trunk, commercial, built-up) and is available in sheets, rods, tubes, strips, rolls, or formed specialties. Write for Catalog DVF-55.

LOW-COST VULCOID Resin-impregnated Fibre.

Vulcoid (made only by CDF) combines the desirable electrical properties and mechanical adaptability of vulcanized fibre with the great moisture-resistance and dimensional stability of phenolic laminates. UL-approved as Class A insulation in electronic equipment. Write for Bulletin V-55.





CDF CELORON MOLDED PRODUCTS

Celoron is a molded-macerated and/or combination laminated base bonded with phenolic resins. High strength, long life, and low cost are the characteristics of molded electro-mechanical parts made from CDF Celoron[®]. Its good electrical properties make Celoron an ideal molded insulator, while its high mechanical strength makes it an excellent material for gears, couplings, intricate static-free loom parts, etc. Get samples and Catalog C-56 by writing to CDF or asking your CDF sales engineer.

For a better motor or generator-

CDF MICABOND INSULATING PARTS

CDF mica V-rings and slot liners insulate America's best-selling motors and generators. Finest-quality mica splittings insure highest heat-resistance and insulation under severe operating conditions.

Forms of Micabond® available: Sheets; Tubing; Tapes (with backings of cotton, silk, paper, woven glass, and Mylart polyester film; Fabricated Parts of various shapes. CDF supplies and fabricates Micabond to your strictest specifications on time and at low cost. Call your CDF sales engineer or write for samples of Micabond and Catalog M-55

tduPont trademark

THERE'S A CDF SALES OFFICE NEAR YOU

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BUFFALO 3, N.Y. WAshington 3929
495 Ellicott Square Building

CHICAGO 11, ILL. DElaware 7-6266 1201 Palmolive Building

CLEVELAND 14, OHIO STORMS Cher 550 Leader Building DAYTON 2, OHIO Ad 221 Third National Building Cherry 1-5220

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Canadian Representative DIAMOND STATE FIBRE CO OF CANADA, LTD. 46 Hollinger Rd., Toronto 13, Ontario, Can.

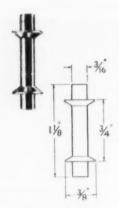


CONTINENTAL-DIAMOND FIBRE

A SUBSIDIARY OF THE BUDD COMPANY . NEWARK 41, DELAWARE



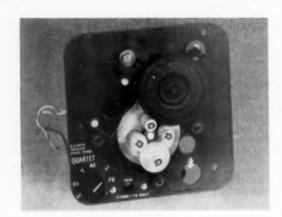
CASE HISTORIES



Cuts Component Cost \$4.50 per Thousand

A manufacturer required a stainless steel shelving spacer in quantity in accordance with specified tolerances but at lower cost than it had previously been paying. John Hassall, Inc., Westbury, Long Island, N.Y. was able to turn out the part by means of double heading and cold heading. The savings in scrap alone with this method saved the customer \$4.50 per thousand over the screw machining method.

CIRCLE NO. 281 ON INQUIRY CARD-PAGE 17



Rings Save Phonograph Maker 76¢ per Unit

A leading phonograph manufacturer is using four Waldes Truarc grip rings and four crescent rings to reduce manufacturing costs and speed assembly operations. In the original design, the phonograph's speed control turret had 14 parts. Replacing these parts with a cne-piece nylon molding held in place by grip rings eliminates most of the assembly operations and saves the company 64¢ a unit. Crescent rings are used to replace screws and nuts and cut 4¢ off machining costs and 8¢ on assembly charges for each phonograph.

CIRCLE NO. 282 ON INQUIRY CARD-PAGE 17

COMPARISON OF TENSILE STRENGTH NYLOK vs Standard MS Bolt

BOLT	8 with NYLOK	BOLT	MS 20008
#1	29,575	A	29,400
#2	29,250	8	29,575
#3	29,400	С	29,725
114	29,850	D	29,600
#5	29,600	E	29,810

Self-Locking Screws Save up to 85% Assembly Time

A prominent West Coast aircraft manufacturer found that he could save up to 86% assembly time on air frames and air frame components by using "Nylok" self-locking inserts, made by Standard Pressed Steel Co. These fasteners eliminate the need for drilled heads, locking wires, lock washers or castellated nuts. Approved for use at 250 F temperatures, the screws make use of the elastic properties of nylon to provide self-locking action on threaded fasteners which might loosen under severe shaking and jarring.

CIRCLE NO. 283 ON INQUIRY CARD-PAGE 17

For More Information Circle No. 829 on Inquiry Card—Page 17→

whatever you make . . . there's a

WALDES TRUARC RETAINING RING

designed to improve your product
... save you material, machining and labor costs

function		for axial assembly				for taking up end-play						
		Tor data assembly				axial assembly				radial a	radial assembly	
nomenclature		basic		inverted		bowed		beveled		t	locking prong	bowed e-ring
		5		0	0	0		6) (0	C
series no.		5000	5100	5008	5108	5001	5101	500	02 !	5102	5139	5131
applicat	tion	Internal for Housing Bores	External for Shafts	Internal for Housing Bores	External for Shafts	Internal for Housing Bores	External for Shafts	Internal Housing		xternal for hafts	External for Shafts	External for Shafts
range	in.	.250-10.0	125-10,0	750-4.0	500-4.0	.250-1.456	.188-1.438	1.0-1	0.0	.0-10.0	.094438	.110-1.375
	mm.	6.4-253.8	3.2.253.8	19.0-101.5	12.7-101.5	6.4-37.0	4.8-36.5	25.4-2	53.8 25	.4-253.8	2.4-11.1	2.8-35.0
function		for radial assembly				self-locking types						
nomenclature		crescent	e-ring	interlock	ing	circular self-locking			triangular self-locking		triangular nut	grip-ring
		0	C	C	C	> €	3 ()	6	1	4	Ω
series n	10.	5103	5133	5107	500	5 51	15 5	105	530)5	5300	5555
application		External for Shafts	External for Shafts	External t Shafts	or Internal Housing			ternal for afts	Externa Shafts	-	With Threaded Screw	External for Shafts
range	in.	.125-2.0	040-1.375	.469-3.37	5 .312-2	2.0 .094	1.0 .0	94-1.0	.0624	137		.077755
	mm.	3.2-51.0	1.0-35.0	11.9-85	7 7.9-5	0.8 2.4-2	5.4 2	4-25.4	1.55-1	1.1		

DESIGN PRINCIPLES

General: Tapered design permits rings to maintain constant circularity and groove pressure.

Series 5000 and 5100: Basic types for axial installation. Rings provide optimum groove strength.

Series 5008 and 5108: Best clearances. Accommodate parts having large corner radii or chamfers.

Series 5103: Best clearances. Secure against moderate impact and vibration.

Series 5133: Provides high coupling shoulders; accommodates wide groove tolerances. Easy servicing.

Series 5107: High impact resistance, high coupling shoulders. Accommodates extremely high rotation and relative parts rotation.

Series 5001 and 5101: Resilient endplay take-up. Accommodate wide tolerances. Recommended for pre-loading bearings.

Series 5002 and 5102: Rigidly locked end-play take-up. Recommended for locking one race of parallel bearing assemblies.

Series 5139: Rigidly locked into position by protruding locking tabs. Provides high resilient end play take-up with sliding tabs for uniform flexure. Cannot be forced from groove without destroying ring. Accommodates relative parts rotation. Equally effective with round, square, rectangular or hex shafts.

Series 5131: Provides high take-up. Recommended where clearances are a major problem.

Series 5005, 5115, 5105 and 5305: Prongs dig into shaft, locking rings against movement in one direction.

Series 5300: Spring tension locks parts assembled with threaded screws.

Series 5555: Self-locking against movement in either direction by spring tension. Since no groove is required, ring is adjustable to any position on shaft.





WALDES KOHINOOR, INC.

manufacturers of Waldes Truarc Retaining Rings, Pliers, and Accessory Tools
47-16 Austel Place • Long Island City 1, New York, U.S.A. • Telephone: EXeter 2-3100
TWX: NY4-2391 • Western Union: LQW • Cable: Waldesian, N.Y.

FUNCTION

Waldes Truarc Retaining Rings are designed to provide shoulders for positioning and retaining machine components on shafts and in housings and bores. Because of the exclusive design principle incorporated in their construction, the rings undergo circular deformation rather than oval deformation, thereby maintaining constant circularity when expanded and contracted within the limits of normal use. When installed in a groove, Truarc retaining rings provide a secure shoulder against heavy thrust loads and high rpm's—while maintaining constant pressure against the bottom of the groove

VERSATILITY

Waldes Truarc Retaining Rings are available in 36 functionally different types with as many as 97 standard sizes within a single type. They may be ordered in 5 metal specifications and 14 different finishes. While all of the rings have been designed to serve as retaining shoulders, some have been designed and engineered to perform additional functions far beyond the limits of conventional ring retainers and other methods of industrial fastening. In the scope of their application in the savings they make possible. Waldes Truarc Retaining Rings represent a complete departure from conventional fastening devices.

MANUFACTURING EXPERIENCE

Waldes Kohinoor, Inc., pioneered in the development of precision retaining rings and has more than 50 years' experience inventing, developing and manufacturing quality fasteners. Waldes Truarc Retaining Rings are being used with outstanding success in the automotive, electronic and aeronautical industries and in a wide variety of consumer and industrial products. The rings have been standardized by major U.S. industries and Government agencies.

QUALITY CONTROL

At every stage in their manufacture—from raw material to finished product — Waldes Truarc Retaining Rings are inspected and tested carefully by trained specialists using the most modern quality control equipment. Truarc standards are the highest in the industry—your guarantee of consistent, uniform quality

DESIGN SERVICE

To assist manufacturers and their design and development engineers in the proper selection and use of retaining rings, Waldes Kohinoor, Inc., makes available without charge or obligation the help and experience of the Truarc Technical Service Staff This group of competent engineers will help you design new products and improve present designs, using standard Truarc retaining rings or specially designed rings to meet your individual requirements. They will design special assembly jigs and fixtures and even help set up an automation assembly operation. We urge you to send in your blueprints today

FIELD ENGINEEPING SERVICE

More than 30 engineering-minded factory representatives and 700 field men are available to you on call This engineering service can prove invaluable in helping you solve design, assembly and production problems

DISTRIBUTION

Truarc rings are available from leading OEM distributors in 90 stocking points throughout the United States and Canada. Wherever you are, Truarc rings are as near as your telephone

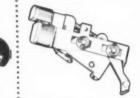
INDEX

- Standard type rings—grouped according to basic function—are described and illustrated on the front cover
- Actual case histories, showing how important manufacturers have used Truarc rings to improve product design and reduce costs, are illustrated at the right
- Waldes Truarc accessory and assembly tools, including the Waldes Truarc Grooving Tool, are shown on the back cover

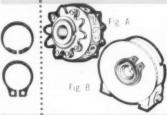
For complete engineering data and specifications, write for retaining ring and grooving tool catalogs



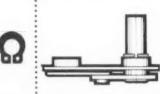
RING SAVES \$300 PER DIE, \$.03 UNIT: Ray Oil Burner Co. uses a Truarc series 5555 grip ring in fuel pump drive shaft to position seal and drive it to assure continuous rotation with shaft. Original design used complicated die-cast collar and driver which required special groove and shoulder. Savings: \$300 per die for each size manufactured, \$.03 per part.



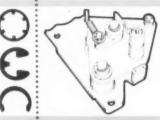
RINGS REPLACE COTTER PINS, WASHERS: Marchant Calculator shift slide assembly uses two series 5139 bowed locking prong rings to secure parts in sliding fit with precisely right amount of spring tension to eliminate wobble and noise. Alternate design used cut washer, spring washer, hairpin-type cotter pin on each stud.



RINGS ELIMINATE SCRAP LOSS: Onepiece dial assembly of Monroe Calculator was spun together with high scrap loss. Two-piece unit (Fig. A) uses series 5108 ring, cuts loss almost 100%. Collector disc (Fig. B) formerly was riveted. One Truarc series 5100 ring replaces rivets, saves labor and materials.



GRIP RINGS SAVE \$32.42/M: Swift Business Machine Co. replaced collars and set screws in hollow shaft assembly of its adding machine with series 5555 grip rings, saving \$32.42 per 1000 units. Rings require no groove, make possible positioning adjustments without slippage encountered when set screws were used.



FEWER PARTS, FASTER ASSEMBLY: Viewlex slide changer uses three type Truarc rings in actuating plate and pawl assembly—series 5105 circular self-locking ring, series 5133 E-ring and two series 5103 crescent rings. They speed assembly, eliminate parts, cut rejects.



BEVELED RING ELIMINATES TAPPING: American Hardware Corp uses Truarc series 5002 beveled ring in heavy duty cylindrical lock. Ring couples knob to knob sharik, eliminating two screws, two tapped holes. Beveled ring takes up end play, provides stronger assembly, greater accuracy



TRIANGULAR RETAINERS SAVE \$.265: To secure thermal tubes in Grinnell heater, threaded tie rod was used with jam nut and drilled and tapped cast iron tube rest (Fig. A). With Truarc (Fig. B), two series 5305 triangular retainers hold tubes securely without grooves, threads or nuts. Saving cut costs 52%, or \$.265 per unit.

SPD 70 M 9-55 RA = 1955, 1957 Waldes Kohinoor, Inc., Printed in U.S.A.

WALDES TRUARC RETAINING RINGS

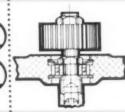




RING ELIMINATES HEAT FORMING: Lens knob assembly on Ansco camera used washer and heat forming operation to flatten plastic pin and lock pivot in position. Series 5105 self-locking ring replaces washer, eliminates heat forming. Ring, which requires no groove, may be removed without damage to knob.



RINGS CUT DISASSEMBLY COSTS: Knobunlocking mechanism of American Hardware lock uses Truarc series 5133 E-ring as spring retainer, series 5108 inverted ring for retaining cylinder plug. Re-usable rings permit disassembly for maintenance, eliminate rejects.



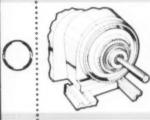
MACHINING ELIMINATED, COSTS CUT: Bearing in Dumore drill is secured by one series 5000 ring, one series 5001 bowed ring which takes up accumulated tolerances. Grooves turned, housing rough bored in one operation. Alternate method required two additional machining operations



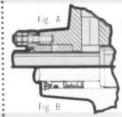
E-RINGS REPLACE SHOULDER SCREWS: Detent lever assembly of Viewlex slide changer uses three series 5133 E-rings to retain rollers and gear Rings replace shoulder screws, eliminate tapped holes. Radial application speeds assembly.



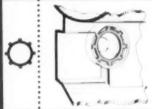
TWO RINGS REPLACE SIX PARTS: Two series 5139 locking-prong rings replace two spring washers, two lock washers, two nuts. Smaller grooved shaft substituted for bolt, eliminating expensive threading at each end and need for skilled labor in assembly



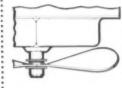
RING REPLACES LOCKNUT: Truarc series 5107 interlocking ring locks handwheel assembly securely on impact sleeve of Jacobs chuck. Eliminates tapping, saves 7.32 in over-all length. Chuck's top speed 5,000 RPM, Truarc ring balanced to withstand 50,000 RPM.



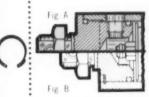
ONE RING SAVES \$2.84 PER UNIT: Hydraulic Accessories Co. uses single ser ies 5008 inverted ring to hold Monopak cartridge in cylinder head. Old design (Fig. A) required costly hand packing and adjustment. With Truarc (Fig. B) stuffing box is smaller, weighs 21/8 lbs. less.



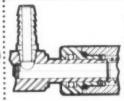
RING AVOIDS COSTLY REJECTS: Rear lens of Ansco reflex camera was secured by heat forming tabs on plastic body. Loose or chipped elements caused frequent loss of both parts. Self-locking series 5005 ring holds lens securely, cuts rejects, permits lens to be removed without destroying body.



TWO GRIP RINGS SAVE \$.07 PER UNIT: n motor fan assembly of Telectro tape recorder, two series 5555 grip rings, used with bowed washer, replace collar and set screw, eliminating costly staking operation. Rings also act as safety clutch, allow fan to slip if obstructed.



TWO RINGS SAVE \$3.26 PER UNIT: A. K. Allen air cylinder used thread-secured head (Fig. A) requiring costly tapping, chasing and assembly. Two series 5008 inverted rings were substituted (Fig. B) for more compact design, labor and material savings of \$3.26 per unit

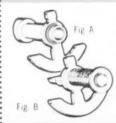


RING REPLACES 3 SPECIAL PARTS: Resistance welding electrode holder made by P R Mallory uses series 5107 ring to secure parts, replacing two special brass and one stainless steel ring formerly. used. Steel ring was silver brazed in position, a costly operation eliminated by the Truarc ring

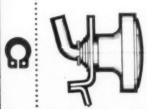


RING REPLACES CAST RETAINER PLATE





CRESCENT RINGS IMPROVE DESIGN: American Hardware lock uses series 5103 crescent rings to save labor and maintenance, improve performance, eliminate rejects. Spindle sub-assembly (Fig. A) has two rings as locating flanges for rollback; sub-assembly (Fig. B) uses one ring as spring retainer, washer locating



REJECTS ELIMINATED, COSTS CUT 33%: B & J Tool uses series 5555 grip ring to secure parts of damper control made for Vulcan Radiator. Shaft formerly was machined down to provide coil spring shoulder, often broke during bending operation. (Rejects ran as high as 80%) New design eliminated rejects and field failures, cut production costs 33%

WALDES KOHINOOR, INC. . LONG ISLAND CITY 1, N. Y.

WALDES TRUARC PLIERS

internal types







Nos. 1, 3 and 5

Nos. 21, 23 and 25

Nos. 7 and 9

external types



Nos. 2, 4 and 6 Nos. 22, 24 and 26

No. 0

No. 0



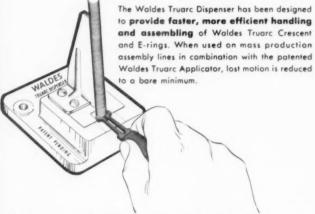
universal types 3-4





WALDES

WALDES TRUARC DISPENSERS & APPLICATORS



The dispenser and applicator are very simple to use—no adjustment or maintenance is necessary nor is skilled or specially trained personnel required.

Waldes Truarc Crescent (series 5103) and E-rings (series 5133) are available packed on stackrods specifically for use with the dispenser.

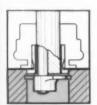
WALDES TRUARC GROOVING TOOL



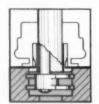
The Waldes Truarc Grooving Tool is an exceedingly versatile tool offering an unsually wide range of possibilities for precision cutting of internal recesses in housings and bores, far beyond the scope and limitations of conventional recessing tools.

The Waldes Truarc Grooving Tool can be used efficiently in drill presses, lathes, or any machine tool equipped with a collet or a chuck. (It is a practical tool for use with a portable drill especially where the workpiece, a boiler piate for example, cannot easily be moved and placed on a machine tool for re-machining.) It will perform equally well whether the tool itself or the part being machined rotates in the machining operation.

Designed for precision cutting of concentric grooves or recesses in bores or housings, the tool can be adjusted easily and will cut grooves within close tolerances. It is an ideal production tool of high efficiency even when operated by unskilled labor.



locating groove from top of bore



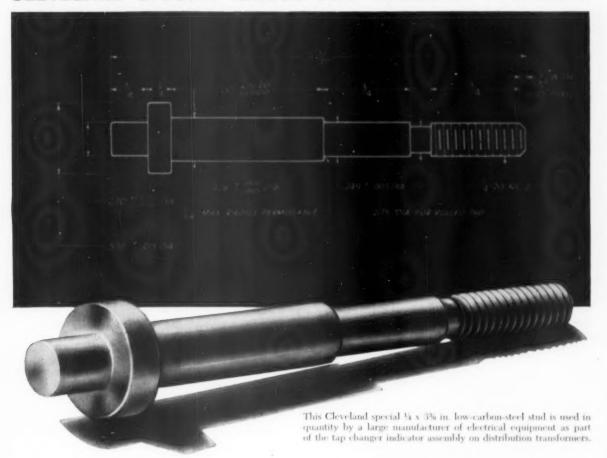
locating double groove from top of bore



locating groove from bottom of bore with bottom adaptor

WALDES KOHINOOR, INC. . LONG ISLAND CITY 1, N.Y.

CLEVELAND SPECIAL HEADED AND THREADED PRODUCTS



Cost of special collar stud is cut 20% by Cleveland's cold forming techniques

The famous Kaufman Double Extrusion Process which turns out millions of Cleveland precision cap screws yearly is highly adaptable to low-cost production of your fast-ener-type specials.

The tap changer stud pictured above is typical. Used by a wellknown electrical equipment manufacturer, it was previously cut from

Black area represents metal that had to be cut away when stud was produced by machining. In the Cleveland cold forming process almost all the metal in the working slug is present in the finished part. The customer saves the difference. bar stock. The special head, double shoulders, and groove above the threads meant numerous machining operations and considerable scrap.

Cleveland now cold forms this special stud at 20% less cost to the customer, while holding the specified .005 in. tolerance. And the part is stronger. In the head, threads and fillets, grain flow is symmetrical and unbroken. In addition, the forging action of the Kaufman process toughens surface metal while

leaving the core ductile. Both fatigue resistance and tensile strength are thus increased.

We are regularly cold forming close-tolerance specials—many with unusual or extreme upsets—in large quantities. So whether your part is simple or complex, it will pay you to check with Cleveland, particularly at the design stage. There is an excellent chance that through cold forming we can cut the cost and improve the physical properties of the part you have in mind.

Write for a copy of our folder "Specials by Specialists"



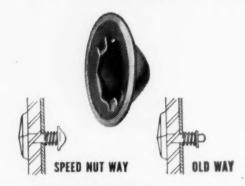
THE CLEVELAND CAP SCREW COMPANY

4444-9 Lee Road, Cleveland 28, Ohio

For More Information Circle No. 830 on Inquiry Card-Page 17

Component Parts

CASE HISTORIES



Slash Assembly Time 82% on Air Conditioner

Fedders-Quigan Corp. achieved an 82 percent reduction in the cost of attaching part of the grille on its room air conditioners by using a Tinnerman cap-type Speed Nut. Formerly a special clevis pin and lock washer were required to retain the spring coil and grille section. Now with the speed nuts, it's possible to put the section on by pressing with one hand. Only one operation is required.

CIRCLE NO. 284 ON INQUIRY CARD-PAGE 17



Three Parts Replaced By Retaining Ring

Prompt Tool & Mfg. Co., Los Angeles, uses a Waldes Truarc bowed E-ring in its quarter-turn jig and fixture clamp to eliminate three parts. As a result, labor and material costs are cut \$1.34 per unit. The ring is used to hold the screw captive in the clamp body and provide the required rotational drag between parts. The ring's bowed construction provides the necessary spring tension to assure a tight fit when the screw is first engaged. In the original design, the screw was held captive by a bowed washer and two locknuts.

CIRCLE NO. 285 ON INQUIRY CARD-PAGE 17



Stove Assembly Time Reduced 73%

Welbilt Stove found that by using Tinnerman Speed Nuts it could eliminate one complete assembly operation. In addition, the company was also able to get along without four special brass machined parts formerly required to attach the oven filament to the liner on their electric ranges. Four standard push-on nuts have replaced four special nuts and eliminate the need for machined brass link screws. Assembly is now four times faster than with the former method.

CIRCLE NO. 286 ON INQUIRY CARD-PAGE 17

Why tough-service drive and conveyor jobs demand LINK-BELT roller chain



RESISTANCE TO TENSILE STRESS is achieved with properly heat-treated, accurately machined side bars made of premium steel and fitted with properly hardened pins, bushings, rollers.



STRENGTH OF CHAIN IN MOTION results from such refinements as pitch-hole preparation, micro-finish of parts, special processing of side bars, pre-lubrication, rigid quality control.

The greater dynamic strength found in Link-Belt precision steel roller chain is essential for long life on today's harder-working drives and conveyors. This added capacity to resist shock loads, centrifugal loads and similar stresses is achieved only because Link-Belt adds refinements in manufacture.

These include lock-type bushings, shot-peened rollers, pre-stressing, closer heat-treat control. The result: a precision chain that takes stresses in stride . . . provides smoother, more efficient performance

that measurably outlasts ordinary roller chain reduces costs.

For full data on Link-Belt roller chain, see your Link-Belt office or authorized stock-carrying distributor.



ROLLER CHAIN & SPROCKETS

LINK-BELT COMPANY: Executive Offices, Prudential Plaza, Chicago 1. To Serve Industry There Are Link-Belt Plants, Sales Offices, Stock Carrying Factory Branch Stores and Distributors in All Principal Cities. Export Office, New York 7; Canada, Scarboro (Toronto 13); Australia, Marrickville (Sydney), N.S.W.; South Africa, Springs. Representatives Throughout the World.

For More Information Circle No. 831 on Inquiry Card—Fage 17 $M_{AY},\ 1957$

For More Information Circle No. 832 on Inquiry Card—Page 17→

299





How many hats do you wear?

It has been said that a product design engineer must wear many different hats. First of all, he has to think out a gadget that will do a certain job without falling apart. Then, he has to be a production expert because he has to be sure that his gadget can be made. Can it be made economically? He has to know some cost accounting. Has he specified screwball component parts? He has to know a lot about purchasing—what materials are available, when they can be delivered and all the rest.

Since most machines contain some springs, your design engineer should (ideally) also be a spring engineer. But don't you have to draw the line somewhere? The most skilled group of spring engineers in the nation are at your beck and call without any obligation. The men at American Steel & Wire have been specialists all their lives. A problem that is new to you may be old hat to them. More than that, they know spring-making machinery, and can suggest design modifications that will allow more efficient production methods. Result? Lower cost for you.

Like they say in the ads, no order is too small or too large. Just call your AS&W representative.

AMERICAN STEEL & WIRE DIVISION

UNITED STATES STEEL, GENERAL OFFICES: CLEVELAND, OHIO COLUMBIA-GENEVA STEEL DIVISION, SAN FRANCISCO, PACIFIC COAST DISTRIBUTORS

TENNESSEE COAL & IRON DIVISION, FAIRFIELD, ALA., SOUTHERN DISTRIBUTORS
UNITED STATES STEEL EXPORT COMPANY, NEW YORK

USS AMERICAN QUALITY SPRINGS

UNITED STATES STEEL





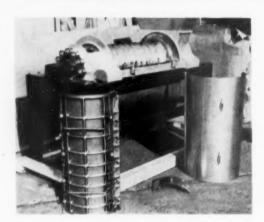
CASE HISTORIES



Powdered Metal Cuts Parts Cost 65%

IBM is using powdered metal parts for its complex business machines. Turning out parts with stepped levels such as gears with a wide flange and a small hub, on a Stokes powder metal press, IBM has reduced costs by as much as 65% and is still able to maintain extremely close tolerances. IBM has found strength, dimensional accuracy and other characteristics of powder metal parts to be at least as good as in parts made by conventional methods.

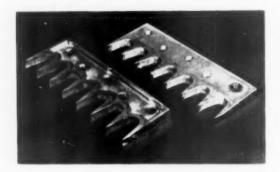
CIRCLE NO. 287 ON INQUIRY CARD-PAGE 17



Stainless Castings Answer To Processing Needs

Many problems of design and construction in fruit juice processing equipment are being solved by stainless casting. In addition to the obvious problem of corrosion from fruit acids, abrasion also has to be considered in designing equipment to handle pulpy residues and peels of citrus fruits. The equipment must also resist the action of strong alkaline detergents used to clean the equipment. Many fruit juice producers have found that stainless castings are the answer to these problems.

CIRCLE NO. 288 ON INQUIRY CARD-PAGE 17



50% Cost Reduction With Shell Molding

Formerly flame-cut and machined from bar steel and then drilled, ice-removing blades of Carrier's Flakemaster automatic flake-ice making machines are now being cast by shell molding methods by Bennett-Ireland, Inc. In addition, the ice-removing blades are also being cast by shell molding. Use of this casting technique has lowered costs by 50% and the new blades, made of manganese bronze, have better corrosion resistant qualities than the steel parts formerly used.

CIRCLE NO. 289 ON INQUIRY CARD-PAGE 17

CUT FASTENING COSTS!

Milford Rivets

Semi-tubular, full-tubular, split. All Milford rivets are cold-formed from a wide variety of metals and alloys.



Here's A Team That Does It For You-Milford Tubular Rivets & Rivet-Setting Machines!

Milford Rivet-Setting Machines

A complete line of precision, highspeed Milford rivet-setting machines for automatic assembly of your products.

Whatever your needs . . . tubular rivets, riveters, special cold-formed fasteners or parts . . . Milford's five manufacturing plants give you unmatched service. To pare your fastening costs, to increase production, get in touch with Milford.





MILFORD RIVET & MACHINE CO.

MILFORD, CONNECTICUT . MATBORO, PENNSYLVANIA . ELYRIA, OHIO . AURORA, ILLINOIS . NORWALK, CALIF.





TAPER-LOCK SHEAVES

Easy on - easy off! Mount flush!



TAPER-LOCK SPROCKETS

No reboring - no waiting!



TAPER-LOCK STEEL CONVEYOR PULLEYS

Maximum strength with minimum weight!

Write for Bulletins!

- Taper-Lock Sheaves. Drive tables and technical data. Bulletin A-661.
- Taper-Lock Sprocket and Dodge Roller Chain data. Bulletin A-644.
- Taper-Lock Steel Conveyor Pulleys.
 Complete data. Bulletin D-56.

DODGE MANUFACTURING CORPORATION 1300 Union Street • Mishawaka, Indiana



Solves Minimum Wrench Clearance Problem



A high-strength washer face hex nut for minimum wrench clearance applications was developed by Elastic Stop Nut Corp. of America for the Kiekhaefer Corp., makers of the Mercury outboard motor line. The basic problems of turning out a connecting rod cap bolt nut with high strength and limited wrenching space were solved by reducing the hex size and selecting high strength material. Height of the nut was increased to .239 in. and the width across the flats reduced to .375 in.

Circle No. 290 on Inquiry Card-Page 17

Speed Nuts Cut Assembly Time 87%

There were production delays on the Easy Spindrier. Trouble was in the motor mount bracket assembly where a staking operation was creating a bottleneck. The company decided to use a special flat-type Speed Nut made by Tinnerman Products, Inc., Cleveland, and found that making this change reduced assembly time 87 per cent. Over-all savings totaled 47 per cent.

Circle No. 291 on Inquiry Card-Page 17

Hydroforming Cuts Production Costs of Lighting Reflectors

A leading manufacturer of lighting equipment used to deep draw lighting reflectors on conventional presses from .062" aluminum blanks. Four operations were needed to produce the required shape without excessive thin-out of the part. Thereafter, the part had to be hand buffed to obtain a reflective surface of the required quality. When the parts were deep drawn on a Cincinnati 26" Hydroform, only one drawing operation was required, instead of four. Also thinner blanks could be used-.051" rather than .062" thick. Hand buffing was replaced with automatic type at a 40% saving in finishing cost.

Circle No. 292 on Inquiry Card-Page 17

Casting Eliminates Machining Charge

In the prototype stage the support fitting for the jet engine removal track of the Chance Vought Crusader was machined out of solid bar stock. When the part became a production item, it was obvious the machining cost would be prohibitive. It was originally believed that the part could not be made as a casting. However, designs and patterns were submitted to Lebanon Steel Foundry to see if a casting could be made. The results: with its Ceramicast Process, Lebanon turned out a casting comparable in quality to the machined part but at much lower cost.

Circle No. 293 on Inquiry Card-Page 17

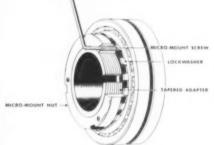
Make Better Bolt at Less Cost

A gate valve bonnet hinge bolt was first produced in a sand mold. However, because of appearance and repeated usage a better method was sought. The H. M. Harper Co. was contacted and with no tolerance or design changes the part was produced as a hot forged blank. The tooling charge on the initial order was \$175 and the unit price was 29¢ each as compared with 50¢ each when the part was made as a casting. With the new method no surface machining was necessary and product strength was increased 15%.

Circle No. 294 on Inquiry Card-Page 17



Exclusive MICRO-MOUNT



Fast and accurate mounting is made possible by the new Dodge Micro-Mount. The Adapter is snugged up with the Micro-Mount Nut. Mounting is completed by turning the Micro-Mount Screws against the Lockwasher until bearing, adapter and shaft form an integral unit.



CALL THE TRANSMISSIONEER, your local Dodge Distrib-utor. Factory trained by Dodge, he can give you valuable assistance on new methods. Look for his name under "Power Transmission Machinery" in the yellow pages of your classified telephone directory—or write up.



Spher-Align

SPHERICAL ROLLER BEARING PILLOW BLOCK

Dodge, the nation's leading supplier of mounted bearings. presents America's newest spherical roller bearing pillow block . . . a rugged bearing in attractive modern design . . . inherently self-aligning . . . easy to install . . . easy to maintain . . . and featuring the unique Micro-Mount.

Its rugged housing of close-grained semisteel withstands shock loads. It has a generous lubrication reservoir-for oil or grease. And standardized dimensions make Spher-Align interchangeable with all other similar units.

Expansion and non-expansion types. Stocked for 21/16" to 8" shafts. Call your Dodge Distributor - or write us.

DODGE MANUFACTURING CORPORATION 1300 Union Street, Mishawaka, Indiana

For More Information Circle No. 834 on Inquiry Card-Page 17

APCO MOSSBERG WRENCHES



for Your Original Equipment

If wrenches are furnished with your products — here is your best source of supply!

Apco Mossberg produces all types of forged and stamped tools — flat and tubular — to your specifications. Our combination of quality and price is tough to top! Send us your specifications for quotes without obligation.



I am interested in contract wrenches for original equipment.

- Please send more information.
- Enclosed are specifications, please quote.

Name

Address

City

State

For More Information Circle No. 835 on Inquiry Card-Page 17

Cost of Machining Valve Parts Cut by 20%



Changing from steel castings to free machining in wrought forms enabled Sarco Manufacturing Corporation to cut the cost of machining valve parts by 20%. These parts consist of body, disc and head for a steam trap. The trap was made originally from a steel casting which required a lot of machining to finish. Use of Carpenter No. 2 (type 420) stainless also gave longer life to the disc. Sarco reports that it is the only moving part in the assembly. In addition, the new stainless steam trap has greater sales appeal.

Circle No. 295 on Inquiry Card-Page 17

Cold Heading Replaces Forging



Replacing forging with cold heading as the method of producing this automotive clutch release bolt, Russell, Burdsall & Ward Bolt and Nut Company increased strength and improved finish and made the piece to closer tolerances. Processing calls for bending, flattening an end section and pressing four ears. The work is done in a bolt heading machine.

Circle No. 296 on Inquiry Card-Page 17





SNAP RINGS



THREAD-CUTTING SPRINGTITES AND SEMS



EATON KEPS

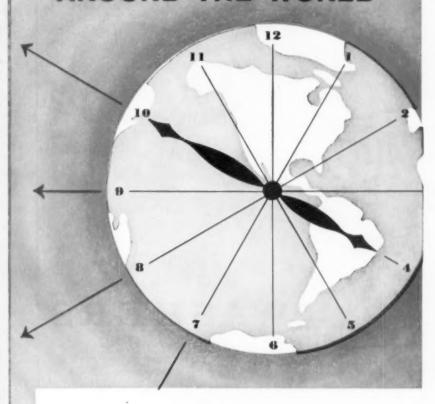


HOZ-FAS-NERS®



SPRING LOCK WASHERS

AROUND THE CLOCK AROUND THE WORLD



Eaton-Reliance Fasteners Keep Assemblies Tighter Longer

Used to advantage wherever assemblies are fastened together, Eaton-Reliance products will be found throughout industry . . . railroad, automotive, appliance, electric, heavy and light machinery, aircraft, and many others. They are manufactured of quality controlled materials to rigid specifications, and are designed to reduce assembly costs and speed up production. There's an Eaton type fastener for your particular needs. Send for free Engineering Bulletin giving details. Just name the fasteners in which you are interested.

EATON

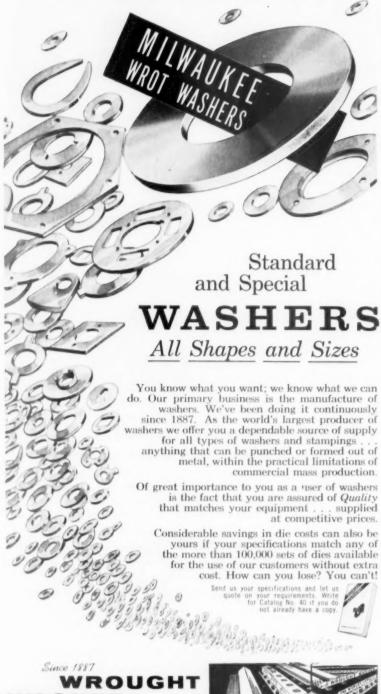
MANUFACTURING COMPANY

516 CHARLES AVENUE

MASSILLON, OHIO

PRODUCTS: Sodium Cooled, Poppet, and Free Valves * Tappets * Hydraulic Valve Lifters * Valve Seat Inserts * Jet Engine Parts * Rotor Pumps * Motor Truck Axles * Permanent Mold Gray Iron Castings * Heater-Defroster Units * Snap Rings Springtites * Spring Washers * Cold Drawn Steel * Stampings * Leaf and Coil Springs * Dynamatic Drives, Brakes, Dynamometers

You name'em.. we make them!



WASHER MFG. CO. 2113 S. BAY ST., MILWAUKEE 7, WIS.



THE WORLD'S LARGEST PRODUCER OF WASHERS

For More Information Circle No. 837 on Inquiry Card-Page 17



The rod from which a shifter interlock lever is made is bent into a double -L with two right angles in one operation in a bolt heading machine. The part was formerly made in a two-stage forging operation. On a header, piece need not be moved in the die while it is forged in two blows of the punch. It is made on the bolt header from continuous lengths of rod at high speed by Russell, Burdsall & Ward Bolt and Nut Company. Circle No. 297 on Inquiry Card-Page 17

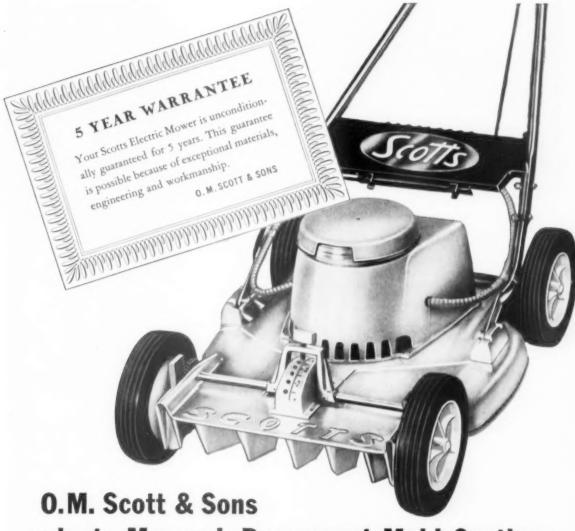
Flexible Connectors Eliminate **Vibration**



In a large apartment house, vibration from the hot water circulating pumps in the heating system was transmitted through the supply and return lines. Rental losses ran into thousands of dollars. Installation of four Flexon Flexible Connectors at the pumps rid the lines of all noise and vibration at a cost of only \$30 including installation and labor.

Circle No. 298 on Inquiry Card-Page 17

You Need Only One Card to Request Additional Information on Any Item. Use Reader-Service Card Page 17



selects Monarch Permanent Mold Castings for more casting value per dollar

In the words of O. M. Scott & Sons, famous for lawns, "We have been dreaming for 20 years of producing the perfect lawn mower. We have spent the last five years designing the Silent Scott." The result is a new concept in lawn mowers, underwritten by their five year unconditional warrantee. Look for it at your neighborhood garden or hardware store.

Monarch Aluminum Velvaglaze® permanent mold castings are used for the 6 major parts of the assembly. The main reasons are strength, durability, performance and appearance. Monarch's ability to provide a "one-source", non-competitive analysis of all practical production casting methods contributed to the effectiveness of Scott's design. This same practical approach in your next development program can help you to obtain better end-products at lower factual end-costs.

The 6 major castings are Velvaglazed—a natural lustrous aluminum, marresisting finish.



Silent Scott is a Trade Mark of O. M. Scott & Sons. Velvaglaze is a Trade Mark of

MONARCH ALUMINUM MFG. COMPANY-9205 DETROIT AVENUE-CLEVELAND 2, 0H10-0Lympic 1-1700 MANUFACTURERS OF: Aluminum Permanent Mold Castings • Zinc Die Castings • Aluminum Die Castings • Exclusive Velvaglaze Finishing • and Spectraglaze, colorful Porcelain Enamel on Aluminum Permanent Mold Castings.

How T&W Technique is applied to serve the construction equipment industry better

If you are building construction equipment, investigate T & W Technique for producing forgings and deep drawn stampings. At the right are two examples of how a fully coordinated team of engineering and production facilities at T & W's Forging and Stamping Divisions serve industry better.

Send a sample or print of your part, today, for estimates.

NEW YORK . PHILADELPHIA -SALES OFFICES CHICAGO . INDIANAPOLIS . DETROIT HOUSTON . LOS ANGELES

ne double roller-type forgin

FORGINGS AND DEEP DRAWN **STAMPINGS**



TRANSUE & WILLIAMS

Forgings

and Deep Drawn

Stamplings

Over 50 years of experience

ALLIANCE, OHIO-USA



Vibration won't loosen FLEXLOC self-locking nuts

Where products must be reliable...must stand up under vibration, temperature extremes and hard use ... designers specify rugged, reliable, precision-built FLEXLOC self-locking nuts.

HERE'S WHY:

FLEXLOC locknuts are strong: tensile strengths far exceed accepted standards. They are uniform: carefully manufactured to assure accurate, lasting locking action. And they are reusable: repeated removal and

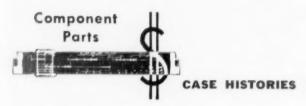
replacement, frequent adjustments, even rough screw threads will not affect their locking life.

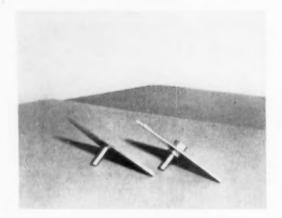
Standard FLEXLOC self-locking locknuts are available in a wide range of standard sizes, types and materials to meet the most critical locknut requirements. Your local industrial distributor stocks them. Write us for complete catalog and technical data. Flexloc Locknut Division, STANDARD PRESSED STEEL Co., Jenkintown 31, Pa.

STANDARD PRESSED STEEL CO.









Redesign Brings 76% Cost Reduction

One company which manufactures aluminum louvres had been using an end piece with a stainless steel hexagon headed fastener which has a special thread and required a stainless steel nut. Pheoll Mfg. Co. studied the part, realized that the hexagon in both faces had no functional value, redesigned the part so that it could be made by heading and grooving operations. This change reduced the cost of the fastener 76%. In addition, assembly was simplified so there were more labor cost savings.

CIRCLE NO. 299 ON INQUIRY CARD-PAGE 17



New Design for Flange Saves \$3,000 per Installation

A leading manufacturer of jet engines encountered a problem in connecting sump pressurizing lines on its engines. Normal connecting techniques such as flange and elbow castings proved too bulky. Flexonics Corporation solved the problem by designing a flange plate to which the pressure line could be welded directly. The design saved weight on the assembly itself, but more important, saved 44 inches on the diameter of the engine compartment. The few dollars invested in the design development of the flange resulted in a savings of \$2,500 to \$3,000 per installation.

CIRCLE NO. 300 ON INQUIRY CARD-PAGE 17



Two-Part Hose Clamp Screw Now Made in One Piece

By making hose clamp adjusting screw in one piece in a cold heading machine, Russell, Burdsall & Ward Bolt and Nut Company has reduced the customer's material and assembly costs. The piece was formerly made in two parts. The basic piece was made in a screw machine and a stamping, which fitted around the head to prevent the screw driver from slipping, was added during assembly operations. The cold heading machine now used to make the piece forms the head with a flange. The screwdriver shield is now an integral part of the piece.

CIRCLE NO. 301 ON INQUIRY CARD-PAGE 17

For More Information Circle No. 841
on Inquiry Card—Page 17->
PURCHASING



Imagine a mile-wide ball with surface finish accurate to within 4/16"

If Hoover could make this giant bearing ball—one mile in diameter and maintain Hoover quality of precision manufacture, the immense sphere would be so smooth that surface finish would be accurate to within 1/16 inch!

In actual terms, the surface smoothness of a Hoover Ball is measured on a micro-inch basis. Roundness and diameter are held within 25 millionths of an inch. Microscopic precision, both in smoothness and spherical accuracy, means quality in Hoover Micro-Velvet Lapped Balls.

Equipment which will measure surface quality to a fraction of one millionth of an inch is used to check and re-check Hoover Balls. A perfectly matched set of Micro-Velvet Balls goes in each bearing.

These precision-made balls team up with the ultra-smoothness and minutely exact curvature perfection of famous Hoover Honed Raceways.

The result . . . equalized load, high capacity, and quiet operation, assuring superior operating performance and long life.

Investigate Hoover's complete line of balls, made in many metals, as well as light, medium and heavy series ball bearings. Engineering assistance is readily available to manufacturers. Write for information.

HOOVER HINTS

Factors Involved In Bearing Selection

Application is the key to bearing selection. The importance of a bearing's characteristics is relative to the job it must do. Usually one is relative to the job it must do, Usually one of the most important factors is the capacity or load-carrying ability. Also important in many applications is the type of loading—thrust, radial or combined — the amount of friction involved . . the ease of assembling a bearing into a unit . . the danger of misalignment . . the limiting maximum speed.

All types of anti-friction

bearings are concisely compared and analyzed from an engineer's stand-point in "Engineer's Handi-Book of Anti-Friction Bearings." Send for yours now.



Hoover Ball and Bearing Company, Ann Arbor, Michigan.

Mail my copy of	Engineer's	Handi	Book	of	Anti	Friction
Bearings."						



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Here are some of the hundreds of specials turned out by (B) in any quantity...accurately, economically...on time. (B) quality assured in every piece.

If your "special" problem is production, delivery, OR design __ call Buffalo Bolt. Over 100 years experience and reliable service.

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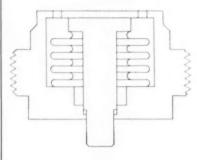
North Tonawanda JAckson 2400 (Buffalo)

Many GOOD products can be made BETTER



For More Information Circle No. 842 on Inquiry Card-Page 17

Bellows Assembly Aids Special Switch Design



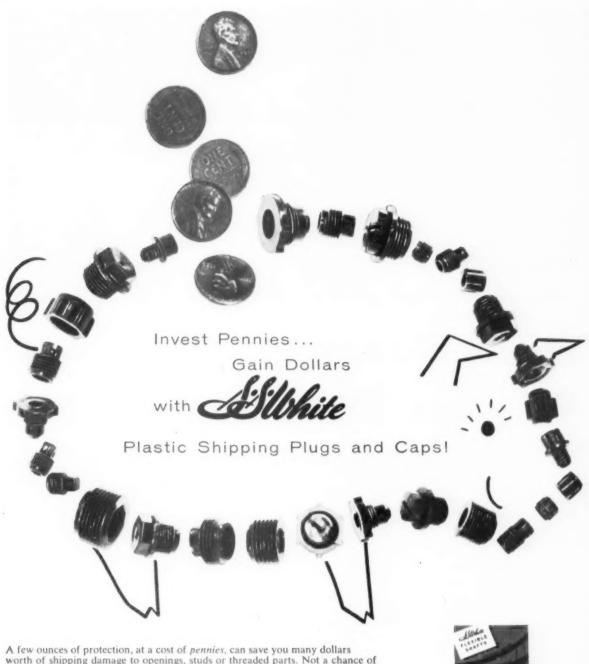
A leading manufacturer of aircraft components was asked by a customer to develop a pressure switch for a fuel system which would withstand 180 psi pressure yet move .020 to .050 inches under a pressure differential of only 5 psi, and operate under temperature conditions varying from -65° to 160° F. A bellows assembly engineered to the requirements of the problem by Flexonics Corporation eliminated the obstacle and made production of the switch possible. The custom engineered assembly spelled the difference between abandoning the project and developing a switch which brought the firm substantial revenue.

Circle No. 302 on Inquiry Card-Page 17

Machining Time Cut 60%, Scrap Rate Reduced

A body block used in high speed can-making machinery is now being produced with a 60 percent saving in machining time and a substantial reduction in scrap by the Haynes Investmentcasting method. The part, being made for the American Can Co., was previously machined from a solid bar of relatively hard-tomachine stainless steel. Now, the investment-cast part requires only slight grinding and several drilling operations before it is ready for installation. Almost all machining scrap is eliminated because the cast part is so close to final size.

Circle No. 303 on Inquiry Card-Page 17



A few ounces of protection, at a cost of *pennies*, can save you many dollars worth of shipping damage to openings, studs or threaded parts. Not a chance of damaged threads, dirt, moisture or leakage!

S. S. White Plastic Plugs and Caps — plain or threaded — can't be misapplied. They have tremendous impact strength . . . will not shred . . . do not jar loose or pop out . . . and are easy to install or remove.

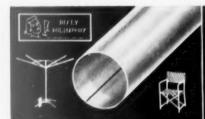
In every way, these plugs and caps live up to S. S. White's reputation as a manufacturer of *quality* products. They are used by hundreds of industries for low-cost, *positive* shipping or storage protection. Perhaps they can save money for you, too. For samples and informative booklets, just write us.



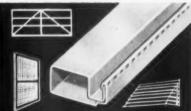
FOR YOUR PURCHASING SOURCES FILE: Bulletin 5601 contains data on sizes and money-saving applications of S.S. WHITE Flexible Shafts. Write today for a copy!



S. S. White Plastics Division, Dept. P. 10 East 40th St., New York 16, N. Y. Western Offices: 1839 West Pico Bivd., Los Angeles 6, Calif.



High strength and superior finish of aluminum roll formed tubing pays off in sign frames of all sizes, aluminum furniture, clothes dryers and other products.



Parts for window screens, farm gates, car ports, awnings and other building products are economically produced with aluminum roll formed shapes.



Many complex truck and trailer framing members, bus strips and other parts are easily fabricated with aluminum roll formed shapes.

Specify ALUNINI ALUNINI Roll Formed Shapes from REYNOLDS

available <u>now</u> in embossed patterns, paint finishes and plain or color anodized finishes

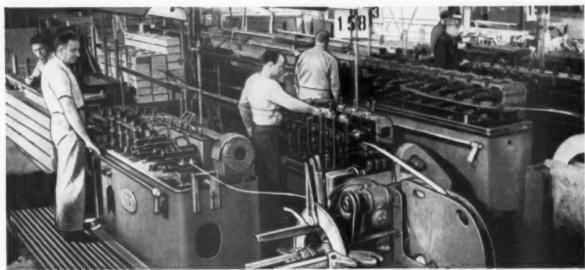
Rolling from coil stock permits savings that are impossible when working from flat sheet. Therefore, if you are fabricating a complex shape from flat sheet, or if you require a shape in long lengths, it will pay to switch to aluminum roll formed shapes from Reynolds.

Reynolds roll forming can produce a wide range of easily fabricated shapes that aid in design flexibility. Closer tolerances on Reynolds roll formed shapes mean dimensional accuracy; better as-fabricated finishes often mean a more attractive product without additional finishing operations.

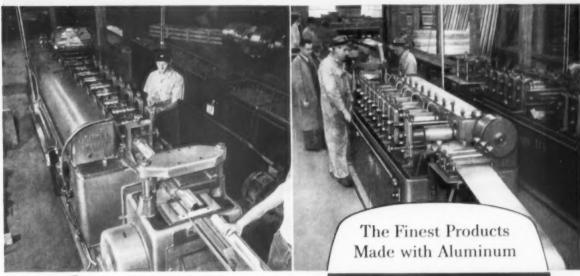
However, if an unusually high quality finish is important to the sales appeal of your aluminum product, Reynolds is your best source for clear anodized, color anodized, painted or chemically brightened finishes or embossed patterns on roll formed shapes. Reynolds new, expanded finishing facilities complement Reynolds sizable investment in roll forming machines and tooling.

For details contact your nearest Reynolds Office listed or write Reynolds Aluminum Fabricating Service, 2056 South Ninth Street, Louisville 1, Kentucky.

REYNOLDS ALUMINUM
FABRICATING SERVICE



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FORMING . ROLL SHAPING . TUBE BENDING . WELDING . BRAZING . FINISHING

For More Information Circle No. 844 on Inquiry Card-Page 17

Component Parts

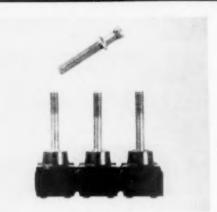
CASE HISTORIES



Change to Teflon Hose Ends Air Brake Failures

A major truck manufacturer has been using solid copper tubing for the discharge line from the air compressor to the air brake system on its 2½ ton and larger trucks. Teflon hose assemblies were supplied by the Flex-O-Tube Division of Flexonics Corporation as standard equipment. Failures from high temperatures and vibration were eliminated, saving the manufacturer service and replacement expense and assuring users of the truck's safe braking under all conditions for the life of the truck.

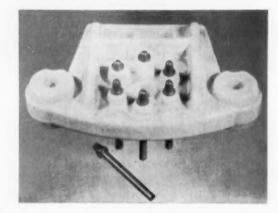
CIRCLE NO. 304 ON INQUIRY CARD-PAGE 17



Cold Forming Saves \$20 per Thousand Pieces

Copper Pins were originally manufactured from bar stock by machining. The Townsend Company developed a method of cold forming these contacts and still hold the difficult tolerances. In the same operation, Townsend cold forms a tubular hole in the end of the shank. This design change resulted in a 50% savings on these parts with superior surface finish and material uniformity.

CIRCLE NO. 305 ON INQUIRY CARD-PAGE 17



Cold Heading Reduces Cost 2¢ per Unit

Copper terminals as originally designed cost double their present price. The original part was designed with machined grooves and knurls to hold it when molded into the plastic block. The Townsend Company redesigned the machined part to incorporate a split head. Production of the new part by high speed, scrapless cold forming and thread rolling resulted in these large savings.

CIRCLE NO. 306 ON INQUIRY CARD-PAGE 17

For More Information Circle No. 845 on Inquiry Card—Page 17-> PURCHASING



Sharp eyes follow your Bethlehem drop forging

No need to point out that the making of a good drop forging requires sharp eyes. But at Bethlehem, we like to feel that the eyes are a little sharper than usual. That's just a way of saying every operation is watched with particular care.

It's the type of care that begins at the furnaces, where the steel is made, and is evident in all the successive steps of rolling, forging, heat-treating, cleaning, and inspection. And throughout the entire process our metallurgical watchdogs are always

on the job, continually checking such matters as analysis, hardness, etc.

Bethlehem offers a thoroughly integrated set-up, one that produces a huge variety of drop-forge designs. Every aspect of the service is strictly first-class. If care and alertness are extras that you value, it will be to your advantage to call us.

BETHLEHEM STEEL COMPANY, BETHLEHEM, PA.
On the Pacific Coast Bethlehem products are sold by Bethlehem Pacific Coast
Steel Corporation. Export Distributor: Bethlehem Steel Export Corporation

BETHLEHEM STEEL

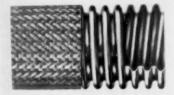




For More Information Circle No. 846 on Inquiry Card-Page 17

State Key No P.5

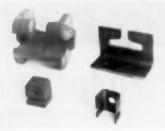
Flexible Hose Ends Vibration on Machines



The shock and vibration of steam drop hammers in a forging shop presented a constant problem of replacing the steam pressure and return lines. The company sought means to eliminate replacement expense and losses due to idling of the machines. Installation of Flexonics RW-75 steel hose on the two 8 inch pressure and one 12 inch return lines at each machine stopped vibration of the machines. A nominal cost per machine to install the flexible steel hose brought long range savings which will run into many thou-

Circle No. 307 on Inquiry Card-Page 17

Change from a Casting to Steel Clip Saves \$2,500 in One Year

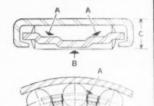


The Arch and Wall contract department, LacLede-Christy Works of H. K. Porter Company, Inc., sells and services large industrial furnace refractory linings. Metal castings fasten fire brick into place and are of many sizes and shapes. By changing from a casting to a steel clip, a savings of more than \$2,500 was realized in one year on the two pieces pictured. Even more important was the immediate customer acceptance due to more satisfactory performance.

Circle No. 308 on Inquiry Card-Page 17



Features of the new TORRINGTON DRAWN CUP ROLLER BEARING



- · rollers end-guided at pitch line (A)
- shaft-riding retainer (B) designed to permit lubricant circulation
- high capacity in small cross section (C)
- long pregreased life
- · efficient at high speeds
- · mounted by press fit
- simple housing design
- · low unit cost

INTRODUCING

a new low-cost precision roller bearing...

THE TORRINGTON DRAWN CUP ROLLER BEARING

For the first time, the advantages of drawn cup outer race construction are available in a precision roller bearing.

This compact, lightweight bearing consists of spherical end needle rollers, a one-piece hardened steel retainer and case-hardened thin-section outer race. Designed to run on a hardened shaft or with an inner race, this new series takes a press fit in a simple housing without snap-rings or shoulders.

Highly efficient roller guidance and lubrication are outstanding features. The shaft-riding retainer contacts the roller ends at the pitch line where guidance can be obtained with the least effort. The design provides ample storage for lubricant and promotes its circulation.

These features make the new bearing particularly suited to applications requiring compactness with precision, high-speed endurance or long pregreased life.

For information on sizes now available and for application assistance, call on our Engineering Department or write for the new bulletin, "Torrington Drawn Cup Roller Bearings." THE TORRINGTON COMPANY, Torrington, Conn. — and South Bend, Ind.

TORRINGTON BEARINGS

District Offices and Distributors in Principal Cities of United States and Canada

NEEDLE . SPHERICAL ROLLER . TAPERED ROLLER . CYLINDRICAL ROLLER . THRUST . BALL . NEEDLE ROLLERS

Threaded Specialties





PAWTUCKET

MANUFACTURING COMPANY



327 Pine Street Pawtucket, Rhode Island

For More Information Circle No. 848 on Inquiry Card—Page 17

Investment Casting Replaces Metal Slug; Saves 40%

Production of a flux-applying wheel by investment casting has reduced scrap losses by 40%, and cut machining time by one-third. These savings are supplemented by the longer service life realized now that the wheels are made of Hastelloy alloy B. Before a Haynes investment casting was used, the wheel had to be machined from a solid slug of metal measuring close to 1" thick and 3½" in diameter.

Circle No. 339 on Inquiry Card-Page 17

Production Costs Down 33%

Donaldson Co. had a problem in making its collector pre-cleaner unit. Welding operations on the unit's intake vanes snagged production and boosted costs. Diecasting would eliminate the need for welding, but three different diameters of the center tube would be needed. Use of a separate die for each diameter would have sent costs up again. Working with Donaldson engineers, Twin City Die Casting succeeded in using replaceable cores to cast all three diameters with the same die. As a result, production costs were cut 33%.

Circle No. 310 on Inquiry Card-Page 17

Forgings Save 273 Parts, 3200 Rivets

An example of the benefits of giant forgings is the case of a major aircraft manufacturer. Prior to use of heavy forgings, the planemaker was turning out main spars by machining them from billets. In machining time alone, a switch to heavy press forgings saved hundreds of hours per airplane. Initial tooling expenditure was more than offset on the first few planes in machining cost savings. Compared with sheet metal and rivet form of construction, the machined forged spar replaced 273 parts, saved 3200 rivets and reduced weight per plane by 124 lbs on the four spars.

Circle No. 311 on Inquiry Card-Page 17

Combination Valves Save Money

Manufacturers of domestic and commercial heating equipment are realizing savings on both direct and indirect costs by using the combination gas valves manufactured by General Controls Co. These valves make it unnecessary to purchase separately a gas regulator, main gas valve, manual shutoff and safety shutoff valve units which often have to be bought from different sources and then have to be assembled and pretested. With the combination valves there is one control, one source. Assembly and testing operation are elimi-

Circle No. 312 on Inquiry Card-Page 17

Aluminum Alloy Check Valve Weighs 55% Less

Designed for aircraft applications, the ½-in. aluminum alloy check valve made by Tactair Div. of Aircraft Products Co., Bridgeport, Pa, weighs 55% less than conventional steel check valves. The MS-approved valves are designed for 3000 psi service and have a rated flow capacity from 1.2 to 29.0 GPM and an ambient temperature range from -65° to 160°F. Wider temperature ranges are available on special order.

Circle No. 313 on Inquiry Card-Page 17

Investment Casting Takes Less Time

Without investment casting it would take 10 to 20 times longer to turn out a radial flow wheel. Starting with a forging or bar stock, extensive machining would have been required. And due to the design calling for bent vanes, it would have been necessary to have an extremely long end-mill. As a result, there would be very high vibration and naturally a loss of accuracy in machining. The investment casting on the flow wheel was performed by Microcast Div., Austenal Inc.

Circle No. 314 on Inquiry Card-Page 17



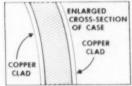
MARSHALLOY CASE

Four times stronger than cast iron One-third lighter

There's nothing temperamental about a pressure gauge . . . provided it's built right and given proper protection. The basic units of Marsh Gauges—socket, tube and movement—are known for the care given to their manufacture. Such units deserve the best protection . . . and get it in the Marshalloy case. Here is a steel case of boiler-plate-thickness, heavily clad with copper inside and out . . . lighter, but many times tougher . . . protected against the ravages of corrosion. It is available only in Marsh Gauges.

MARSH INSTRUMENT CO. Sales Affiliate of Jas. P. Marsh Carp. Dept. G. Skokie, Illinois

Marsh Instrument and Valve Co. (Canada) Ltd., 8407 103rd St., Edmonton, Alberta Houston Branch Plant: 1121 Rothwell St., Sect. 15, Houston, Texas



The strength of steel; the corrosion resistance of solid copper... that's the Marshalloy copper-clad case.

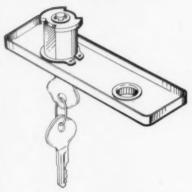


PRESSURE GAUGES . THERMOMETERS . WATER REGULATING VALVES . HEATING SPECIALTIES

For More Information Circle No. 849 on Inquiry Card-Page 17



SEALMASTER BEARINGS A DIV. OF STEPHENS-ADAMSON MFG. CO. 51 RIDGEWAY AVE., AURORA, ILL-For More Information Circle No. 850 on Inquiry Card—Page 17 Rings Replace Screws, Nuts and Washers



Independent Lock Company uses two Waldes Truarc retaining rings to eliminate costly machining and assembly in the manufacture of its screen door locks. A series 5105 self-locking ring retains the plug in the cylinder shell, replacing a washer and locking screw and eliminating the expensive drilling and tapping of the stud formerly required. Because the ring needs no groove, it may be seated at any point on the stud and automatically compensates for accumulated tolerances in the parts. In the original design the shaft was threaded and secured by a locknut. Production of parts was costly and assembly was timeconsuming.

Circle No. 315 on Inquiry Card-Page 17

Pump Streamlining Means Fewer Pieces

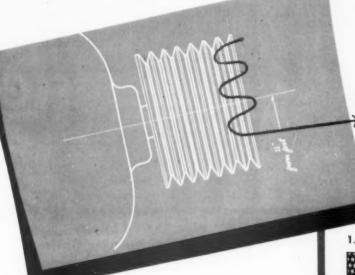
A study by Pheoll Mfg. Co. of a Bennett pump showed that the number of fasteners required could be cut from 519 to 416—nearly a 20% reduction. Also the recommended changes made it possible to reduce the number of types of fasteners needed from 78 to 57. In addition to the direct savings that these changes made possible, there was also a savings in the form of reduced inventories.

Circle No. 316 on Inquiry Card-Page 17

FOR MORE INFORMATION
PLEASE USE
INQUIRY CARD—PAGE 17

Cut sheave width and weight...

get same horsepower with fewer belts



Where space is limited and weight a factor, design your drive with this important fact in mind:

5 Gates Super Vulco Ropes do the work of 7 standard V-belts

That's because a Gates Super Vulco Rope has 40% more horsepower capacity — delivers more horsepower per dollar invested than any standard V-belt drive. Sheaves with fewer grooves cost less . . . weigh less . . . take less room. Drive design is invariably improved.

A wealth of drive data is quickly available to you. Simply call your nearby Gates distributor for a Gates V-belt specialist. Stocks carried in industrial centers around the world.

The Gates Rubber Company Denver, Colorado



Specialized Research

GATES Distributors

Yellow Pages

5 Gates Super Vulco Ropes do the work of 7 standard V-belts

No other V-Belt has ALL these advantages

1. Tough, resilient Tensile Cords



Super strong resilient tensile cords provide 40% greater horsepower capacity . . . easily absorb heavy shock loads . . reduce number of belts required . . . save weight and space.

2. Concave Sidewalls (U.S. Pat. 1813698)



Concave sides (Fig. 1) increase belt life. As belt bends, concave sidewalls become straight, making uniform contact with sheave groove (Fig. 1-A). Uniform contact means less wear on sides of belt . . far longer belt life.

3. Flex-Weave Cover (U.S. Pat. 2519590)



A Gates exclusive: provides greater flexibility with far less stress on fabric. Cover wears longer . . increases belt life . . more power available to driven machine.

4. High Electrical Conductivity

Built into Gates Super Vulco Ropes for safer drives (in explosive atmospheres).

5. Oil, Heat, Weather Resistant

Special rubber compounds make Super Vulco Ropes highly resistant to heat, oil, and prolonged exposure to weather.

TPA 248

Gates Super VILCO Drives



CASE HISTORIES



One-Piece Bolt Replaces Two-Piece Assembly; 46% Saved

One-piece bolts replaced a costly two-piece assembly, resulting in a saving of \$10.50 per 1,000 pieces. The bolt, entirely cold formed in one piece, was the result of a fastening analysis for the user by The Townsend Company. The integral washer and hex head bolt are prevented from turning against a wood surface by spurs, cold formed into the underside of the washer. This bolt doubles in the application as a leveling bolt and crating bolt, doing two jobs with one part.

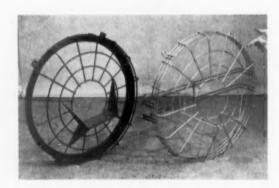
CIRCLE NO. 317 ON INQUIRY CARD-PAGE 17



Wire Thread Inserts Help Reduce Punching Costs

Ingersoll-Rand Company is now using Masonite templates instead of steel for punching operations. Using Masonite, the total cost of templates, including materials, inserts and labor has decreased from \$200 to \$80 each. In addition, the weight of the Masonite template is only one-sixth that of the steel templates. One template may have as many as 25 punches fixed to it—each punch held in position by one or two steel machine screws. Threads to receive the steel screws which secure the punches in position are obtained by wire thread inserts from the Heli-Coil Corporation.

CIRCLE NO. 318 ON INQUIRY CARD-PAGE 17



Change from Casting to Wire For Motor Mount Saves 66%

A well-known electric equipment manufacturer is using a motor mount and guard assembly consisting of a heavy casting with machined edges and a sheet steel mounting platform welded to a wire guard. Cost as a purchased item was \$11.00 each. E. H. Titchener & Company redesigned the unit completely from wire eliminating the castings and the sheet steel plates with a resulting cost of \$3.85 each. Tooling for the new design was only \$660.

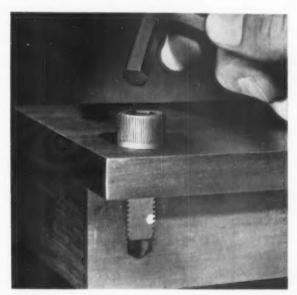
CIRCLE NO. 319 ON INQUIRY CARD-PAGE 17





The ordinary fasteners securing the worm wheel to the drum shaft in this automatic screw machine loosened, causing \$120 worth of damage to parts. Labor for the repair job cost \$100. The ordinary fasteners were replaced with self-locking Unbrakos, and there has been no trouble since.

Vibration won't loosen self-locking UNBRAKO socket cap screws



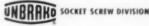
HOW IT LOCKS. The tough, resilient Nylok locking pellet keys itself into the mating threads. It forces threads together and locks the screw securely—whether or not the screw is seated.

UNBRAKO socket screws with the Nylok* self-locking device eliminate fastener problems caused by vibration.

Take the drive system in the automatic screw machine illustrated above, for example. The screws originally used to secure the worm wheel to the drum shaft loosened, causing considerable damage, besides loss of production time. These have now been replaced with self-locking Unbrako socket head cap screws and the trouble has been eliminated.

An Unbrako socket screw with the Nylok self-locking device is a single unit. Just screw it into any tapped hole. Seated or not, it locks positively wherever wrenching stops. Constant vibration or endless running of a machine won't affect these self-locking Unbrakos. The screws will not work loose!

Write today for your copy of Form 2193, which gives catalog and technical data on the complete line of UNBRAKO socket screws with the Nylok self-locking device. Or see your local industrial distributor. Unbrako Socket Screw Division, STANDARD PRESSED STEEL Co., Jenkintown 31, Pa.



STANDARD PRESSED STEEL CO



*I M. Reg. U.S. Pat. GH., The Nylox Corporation

For More Information Circle No. 852 on Inquiry Card-Page 17



precision stands alone . . .

"Fischer Turned" ALUMINUM NUTS



Fischer precision-turned aluminum nuts set new standards of uniformity and accuracy that speed assembly operations . . . reduce costs.

Standard types and sizes or "specials", you pay no premium for this extra quality . . . Fischer turned aluminum nuts cost no more than those produced by other, less exact methods.

C.504-F3

Write today for Catalog No. 55

471 MORGAN ST

CINCINNATI 6, OHIO

For More Information Circle No. 853 on Inquiry Card-Page 17

Retaining Ring Eliminates Rejects, Field Failures



Dictaphone Corporation uses a Waldes Truarc Series 5139 bowed locking prong ring to secure the plastic hook for the listening device of its Time-Master transcribing machine. The ring, which is assembled radially, locks into position with sufficient spring tension to take up tolerances of the plastic parts. It may be removed easily when the unit is serviced in the field and may be used again when the parts are reassembled. Loose and broken hooks previously caused a high percentage of manufacturing rejects and field failures.

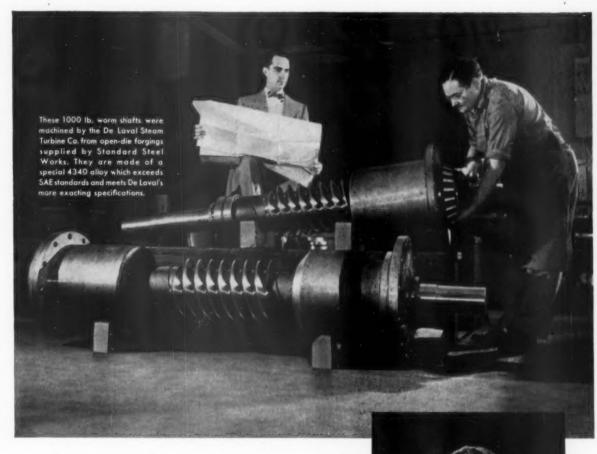
Circle No. 320 on Inquiry Card-Page 17

40% Cost Cut on Motor Component



A sectional piece used by one company in its fractional hp motors had a brass nut at the wire connection point. This particular part required a heading, roll threading and a slotting operation plus a brass nut. After analysis of the part, Pheoll Mfg. Co. redesigned it so that it could head and roll, and by using the same principle of staking the part, made it possible to use an economical wire connector. This eliminated a soldering operation as well as the cost of slotting. Total cost reduction amounted to

Circle No. 321 on Inquiry Card-Page 17



"It used to take us 12 weeks to get the required forgings for these worm shafts. We now get them in 6 weeks —from Standard Steel Works"

We accommodate De Laval's Mr. Schwarz in two ways so as to give him the service he wants: (1) We keep ingots and billets of the special high quality steel De Laval demands on order point—we can meet even the largest requirements on short notice; (2) each forging is tested and inspected—the product of complete and precise quality control. Mr. Schwarz knows he can expect not only service, but also quality when he orders forgings and castings from us.

Mr. Schwarz is just one of many industrial executives who have been impressed with the extra service we enjoy rendering. Not a month goes by that De Laval doesn't come to us with some special request which we can meet, and cheerfully. And hardly a day goes by that one of our many customers doesn't put our boast of personalized service to the test. Why don't you let us handle your next forging or casting requirement. You'll appreciate our service as well as our know-how. Write Dept. 5E.



Standard Steel Works Division

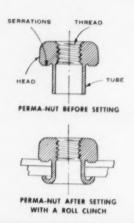
*BALDWIN · LIMA · HAMILTON

BURNHAM, PENNSYLVANIA

Rings . Shafts . Car wheels . Gear blanks . Flanges . Special shapes



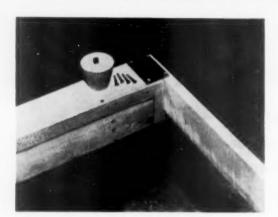
CASE HISTORIES



Assembly, Production Costs Cut With Cold-Formed Fasteners

An electrical appliance manufacturer had an assembly problem in attempting to fasten the motor-mount to the external case with standard nuts and bolts. Hard-to-reach locations required special, slow assembly techniques. Due to cost, a screw machine product was not the solution. The Tubular Rivet and Stud Company provided the answer with a tubular rivet having a drilled and tapped head. Called a Perma-Nut, it functioned as a nut, or rivet, or both. To prevent it from rotating under torque or loosening it has 16 radial serrations.

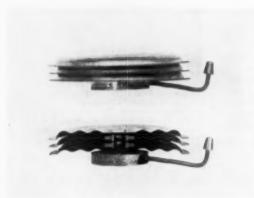
CIRCLE NO. 322 ON INQUIRY CARD-PAGE 17



Wire Thread Inserts Speed Furniture Production

A manufacturer of furniture and other wooden products made a simple change in fastening methods and improved its product, and reduced assembly time, materials required, product weight and production costs. Originally two steel plates were secured to the bottom of the frame by wood screws and required six operations. Present design replaces the steel plates and four wood screws with a single stainless steel wire thread insert, made by the Heli-Coil Corporation. The wooden legs are screwed into strong, smooth metal threads provided in the wood by the inserts.

CIRCLE NO. 323 ON INQUIRY CARD-PAGE 17



Diaphragm Capsule Saves Four Times Its Original Cost

Savings estimated at four times the purchase price resulted from a change in design of the sensing element of a pressure switch. Use of a U.S. Gauge Ni-Span "C" diaphragm capsule effected a series of savings. First it completely eliminated the temperature compensation requirement which, with the bellows assembly previously used, was a hand adjustment. Second, the extra motion available from the diaphragm capsule, enabled a single diaphragm to replace seven bellows which had been necessary. Although the price of a diaphragm was three times that of a bellows the savings exceeded this price differential by 400%.

CIRCLE NO. 324 ON INQUIRY CARD-PAGE 17





Does your Cylindrical problem call for

a Centrifugal solution?

If your product plans call for hollow cylindrical parts, give some thought to these facts. Manufacturers who had never seriously considered cast parts before are discovering important advantages in Sandusky centrifugal castings.

They're getting exceptional resistance to heat, corrosion, abrasion and stress, through the use of special alloys cast centrifugally . in diameters from 7" to 54", and lengths to 33 feet depending on diameter . . . and specially machined to specifications.

How can our versatile staff and facilities help you? Tell us your product requirements. Let us explore your ideas. Perhaps we can help solve your cylindrical problems through the vast foundry experience, metallurgical research and machining skills our 46 years offer.

Your request will bring more information promptly . . . or, if you prefer, a personal call by one of our engineers. Sandusky Foundry and Machine Company-Sandusky, Ohio.

Sandusky centrifugal castings offer you 4 important advantages:

- 1. SUPERIOR STRENGTH through non-
- 2. BETTER QUALITY machined castings
- 3. UNIFORM SOUNDNESS-harmful inclu-
- 4. JOB-READY FINISHED CASTING-reach you machined exactly to your specifica-tions . . . eliminating extra costs from rejects, down-time, loss of production, etc.



See Our Booth #1339 at the Design Show

Sandusky Centrifugal Castings

Stainless steels—plain carbon and low alloy steels—wide variety of copper base compositions

For More Information Circle No. 855 on Inquiry Card-Page 17



your source for savings in component design and production

Here, Perspective Engineering conceives and creates fasteners and components of metals and plastics for mass-assembly. Skilled craftsmen produce these parts by the millions in integrated manufacturing facilities. Through this unique combination of talent and machinery, industry is served with maximum design flexibility and production speed. Assembly time is saved, costs are reduced.

PASTEX® PARTS PICTURED ABOVE ARE: 1. Q Fasteners (T.M.), fasten with a quarter turn, 2. Plasti-Supports (T.M.), blind-assembly shelf supports. 3. Plasti-Grommets ®, self-retaining blind acrew receptacles. 4. Plasti-Plugs ® improve product appearance. 5. Molding Clips are self-adjusting, vibration proof. 6. Plasti-Rivets &, one-piece, self-expanding for blind assembly. 7. Springrip Fasteners with internal teeth. 8. Plasti-Rings &, self-retaining plastic shaft retainers. 9. Precision Stamped Gears, complete range of types and sizes. 10. Speed Nuts 9., economical self-retaining nuts. 11, Engineered Stampings speed assembly. 12. Plastinite ® one-piece strain-relief grommets. 13, Nylon Spirold ® Gears offer new space and weight economies. 14. Engineered Molded Plastic Parts, low-cost, time-saving.

FASTEX

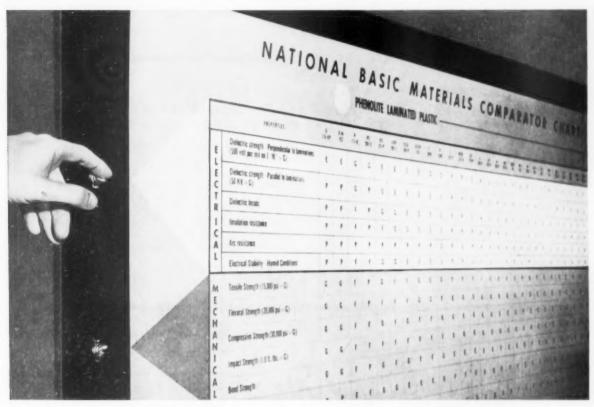
DIVISION OF ILLINOIS TOOL WORKS

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The national scene



VALUE ANALYSIS BEGINS WITH "ONE BEST MATERIAL". You'll see this king-size Materials Comparator Chart at the 1957 NAPA show at Atlantic City. Dramatizing today's problem of materials selection, device gives a detailed comparison of 31 basic grades of Vulcanized

Fibre and Laminated Plastic—including costs. With it you can make your choice in a matter of minutes. National's Materials Comparator Chart is also available in handy folder size for personal use. Write for a copy, or pick one up at Booth 611.



VALUE ANALYSIS ENDS WITH 100% USABLE PARTS. Value gained in selecting the "one best material" is compounded by National's fabricating service. Parts are precision-fabricated to your engineering specifications. They are delivered to meet your production schedules—100% usable, no rejects.

NATIONAL CAN HELP YOU

reduce unit product cost or improve product performance at no added cost. Here's why . . . You can select the "one best material" from over 100 grades of Phenolite®, Vulcanized Fibre and National Nylon—without compromise in properties or cost. You can simplify production and purchasing with the timed delivery of 100% usable parts—from a single, reliable source. You gain competitively with National's new materials and grades—the direct results of programmed materials-research.

You'll benefit by calling National first. Check Sweet's PD File 2b/Na, the Telephone Directory Yellow Pages, or write Wilmington 99, Delaware, Dept. B-5.



In Canada: NATIONAL FIBRE CO. OF CANADA, LTD., Terente 3, Oct.

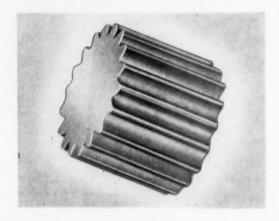
See National at N. A. P. A., Atlantic City, N. J.-Booth No. 611

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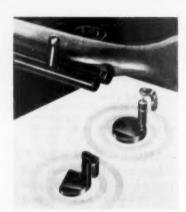
CASE HISTORIES



Brass Powder Sintering Cuts Costs 92%

The tiny gear shown here was formerly machined from pinion stock. Turning, drilling, cut-off milling and wire bushing were necessary operations. Total cost of the gear was 74¢. As a brass sintering, the part is now pressed into finished shape and size in one operation with the addition of flats on the pinion head. Total cost with the brass sintering method is 5.8¢ per gear—a 92% cost reduction.

CIRCLE NO. 325 ON INQUIRY CARD-PAGE 17



Die-Casting Substituted for 3-Piece Assembly; Saves 86%

The three pieces in the automatic safety catch of the Crosman gas-powered rifle, together with their assembly, used to cost \$143 per thousand. Redesigned for mass production on Gries Reproducer Corporation's automatic diecasting machines, this safety catch is now one piece, and costs only \$16.50 per thousand. Not only is the part much cheaper to produce, but the zinc alloy die-cast catch offers several other advantages: appearance is modern; parts do not loosen; all catches are perfectly identical for speedy assembly.

CIRCLE NO. 326 ON INQUIRY CARD-PAGE 17



Retaining Ring Eliminates Seven Parts

Gordon Enterprises used a Waldes Truarc series 5100 retaining ring to eliminate seven parts and save \$8.88 per unit in the fabrication and assembly of aerial reconnaissance cameras. The ring is used to hold the shutter speed adjustment mechanism to the plate which mounts and locks the lens and shutter assembly to the camera body. The original design used a spring and retaining washer held in place by a collar and four locking screws.

CIRCLE NO. 327 ON INQUIRY CARD-PAGE 17



Here's how **Bearings**, **Inc.** helped a customer save \$2,000 in 60 days!

By removing bearing inventories from several departments to one centrally located stockroom, establishing records showing every application for every bearing, the bin number where these bearings are stocked and the quantity on hand, our engineers saved our customer money and made all bearings immediately available. Many identical bearings bought by several departments for many types of machines were found in quantities exceeding normal requirements. Many bearings were unuseable—unwrapped, dirty and rusty. A few of these bearings are shown above with W. J. Lukach, Bearings, Inc. sales engineer who supervised cleaning, greasing and re-wrapping all bearings not in original boxes.

THE PAYOFF OF OUR SERVICE, ACCORDING TO OUR CUSTOMER, EMPIRE STEEL CORPORATION AT MANSFIELD, OHIO, WAS A SAVING ON BEARING PURCHASES OF \$2,000 IN LESS THAN TWO MONTHS.

This is not an isolated example of our services — surveys of bearing requirements, inventory control, application engineering, maintenance schedules and procedures are a regular and continuing part of our service to all customers to whom we supply replacement bearings. Ask how we can help YOU!

Providing bearing service in the territories adjacent to our branches, listed below.

BEARINGS, INC.

OHIO: Akroa • Canton • Cincinnati • Cleveland • Columbus • Dayton • Elyrla
• Hamilton • Lima • Mansfield • Tolede • Youngstown • Zaneoville
INDIANA: Ft. Wayne • Indianapolis • Muncle • Terre Haute

PENNSYLVANIA: Erie o Johnstown o Philadelphia o Pittsburgh o Yeris WEST VIRGINIA: Charleston o Huntington o Wheeling NEW JERSEY: Camden o MARYLAND: Battimore

DELAWARE: Wilmington

Subsidiaries: Batanrol Corp.

Butlalo, N.Y.

Kentucky Ball and Roller Bearing Co.

Louisville, Ky.



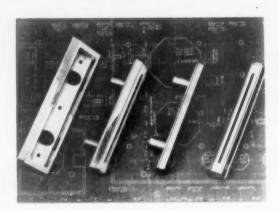
CASE HISTORIES



Grip Rings Eliminate Drilling, Silver Brazing

Future Products Company uses six Waldes Truarc Series 5555 grip rings to eliminate costly drilling and silver brazing operations in the manufacture of an arrow fletching machine for Hawkeye Feather Company. Three grip rings are used to secure the positioning slides to the base and slide control. Because the rings require no groove they may be seated at any point on the stud, automatically compensating for accumulated tolerances. Savings with the three grip rings amounts to 30¢ per assembly, or 60¢ per machine. Assembly time has been reduced by approximately 80%.

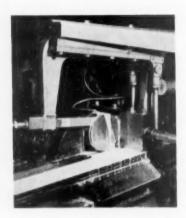
CIRCLE NO. 328 ON INQUIRY CARD-PAGE 17



Die Casting Solves Restyling Problem

Ammana engineers were seeking a new kind of handle for the Ammana Stor-More freezer refrigerators. Early in the planning stages Ammana got together with a job shop diecaster and came up with this solution: A chrome plated zinc diecast escutcheon framing a push-button type latch assembly that could be opened with a light touch of the thumb or elbow. Flexibility of the diecasting process permitted a finger hold for swinging the door outward and incorporated a series of parallel cast-in grooves on the underside of the escutcheon for non-slip gripping.

CIRCLE NO. 329 ON INQUIRY CARD-PAGE 17



End to Uneven Cuts, Excessive Saw Blade Breakage

Edgcomb Steel Co., was troubled by uneven cuts and excessive saw blade breakage in hack sawing high speed steel billets. By switching to Capewell Saftech Power Hack Saw Blades the job has become routine and production problems have been eliminated. The company reports it is getting more cuts per blade, quickly and economically, under heavy feed than was previously possible.

CIRCLE NO. 330 ON INQUIRY CARD-PAGE 17

For More Information Circle No. 859 on Inquiry Card—Page 17→

PURCHASING



ago 14, Tilinois

Rockford, filingis

ago 27, Illinois

Rochester, Indiana

Cleveland 7, Ohio

Cleveland 2. Ohio

_Clifton, New Jersey

ELCO TOOL & SCREW CORPORATION

GREAT LAKES SCREW CORPORATION

INDIANA METAL PRODUCTS DIVISION,

PARKER KALON DIVISION, GENERAL AMERICAN TRANSPORTATION CORP.

FEDERAL SCREW WORKS

H. M. HARPER CO.

HARVEY HUBBELL, INC.

LAKE FRIE SCREW CORP.

MIDLAND SCREW CORP. NATIONAL LOCK COMPANY THE NATIONAL SCREW & MFG. CO.

THE LAMSON & SESSIONS CO.

pre-assembly...

reduces handling...saves time and money

Sems fasteners are pre-assembled to cut wasteful hand operations in mass-assembly production. Washers can't be lost or forgotten and rejects due to mismatched screw and washer are stopped. Often hopper-fed for automatic driving, pre-assembled Sems are a first step in automation.

SEMS is a development of Illinois Tool Werks, Chicago



JOLIET

To Purchasing men who have helped make Joliet "first" we are proud to announce the completion of a very extensive plant expansion program. New facilities provide the reserve capacity and flexibility to meet any increase in both your regular or any emergency immediate shipment requirements. Continue to look to Joliet for washers of all types—standard and special, any size, any metal, any quantity.

JOLIET WROUGHT WASHER COMPANY . Joliet, Illinois



Hole Tapping Which Took 3 Days Now Completed in 3 Hours

American Machine & Metals had a job which called for tapping blind holes in Inconel metal. In an effort to find a faster way of doing the job, the company contacted Greenfield Tap & Die Corp. for recommendations on the correct taps to use. Greenfield ran some experiments and came up with the recommendation that American Machine & Metals should use GH 3 4-flute bottoming hand taps reground to 21/2-3 thread chamfer, tapping speed 56 rpm, cutting approximately a 60% thread. As a result of using the Greenfield Tap & Die taps, American Machine & Metals reports it is now tapping as many pieces in 3 hours as it formerly did in 3 days.

Circle No. 391 on Inquiry Card-Page 17

Production Up 400%—One Coat Coverage Did It



Kelley Manufacturing Company set up an automatic process for finishing ten foot "Z" forms with white lacquer, fed them into a conveyor on which they dried while going to the packing department. One coat of lacquer didn't give sufficient coverage. A two coat system was being used Production was 1500 feet per hour, costs were high. With hot spray, one coat covered better than two had before. Production climbed to 6000 feet per hour and handling costs came down 50%. In addition, rejects were nearly eliminated.

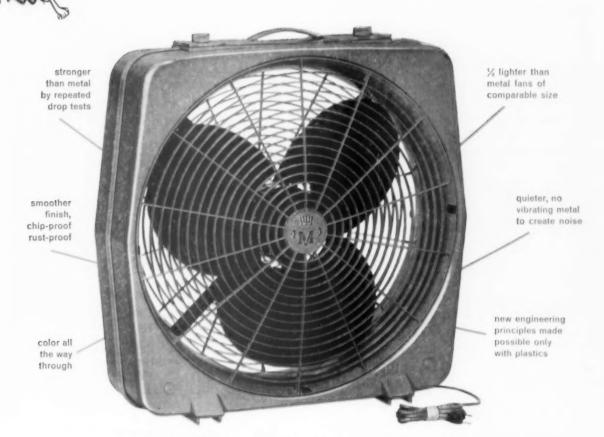
Circle No. 392 on Inquiry Card-Page 17

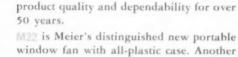
For More Information Circle No. 860 on Inquiry Card—Page 17

> For More Information Circle No. 861 on Inquiry Card-Page 17->

"Let me tell you how M22 is ...

6 ways better with **AMOS PLASTICS**"





M22 is Meier's distinguished new portable window fan with all-plastic case. Another Meier fan "first" with the exclusive advantages listed above!

M is for Meier Electric-a name famed for

A is for Amos-a name known for many

"firsts" in product redesign and engineering for plastics, including the new M22.

Y is for you-to ask whether your product might benefit by Amos conversion to plastics? No obligation, write, wire or phone:

Amos Molded Plastics, Dept. P-57, Edinburg, Indiana Offices: Chicago, Detroit, New York City, Philadelphia, Kansas City, Mo.









Cost Cutting Catalogs

Guide for Selection of Expansion Joints

Catalog 160 is represented as a "complete design guide for application and selection of expansion joints. It does a good job of comparing Flexon expansion joints with other types of expansion solutions and describing particular types of joints and their applications.

Flexonics Corporation

Circle No. 331 on Inquiry Card-Page 17

Grommets Cut Assembly Time

A four-page bulletin, "How Fastex Plasti-Grommets Can Cut Your Costs," discusses a new type nylon blind screw receptacle. The grommet is designed to facilitate rapid assembly. Case histories describe how grommets have been used on particular products to make substantial savings.

Fastex Division Illinois Tool Works

Circle No. 332 on Inquiry Card-Page 17

Make It Out of Wire

"How Wire Construction Reduces Cost" is a study of 36 products showing how redesign with wire has reduced cost. Case histories in the booklet provide examples of successful substitution of wire construction for parts made by stamping, die casting, and various types of assemblies.

E. H. Titchener & Co.

Circle No. 333 on Inquiry Card-Page 17

Molded Soft Rubber Products

Catalog 53 A is actually three catalogs in one. One section is, in effect, a pictorial tour of a modern rubber plant. A second section describes rubber parts made for various industries. The third section contains engineering data on various types of rubber.

Acushnet Process Co.

Circle No. 334 on Inquiry Card-Page 17

Non-Ferrous Forgings

A new and attractive bulletin is devoted to forgings of aluminum, brass, and copper. Advantages of forgings over castings and die castings are discussed. Tables list properties of forgings made of various non-ferrous alloys. Examples of typical forgings are shown.

Revere Copper and Brass Inc.

Circle No. 335 on Inquiry Card-Page 17

Powdered Metal Uses Grow

Can you use advanced technical data on the application of bearings, machine parts, infiltrated parts, plated parts and pole pieces made of powdered sintered metal? Manufacture and use of powdered metal parts are described in detail in a recently published 24-page booklet.

The Bunting Brass and Bronze Co.

Circle No. 336 on Inquiry Card-Page 17

Proved Saving with Die Casting

A 4-page bulletin is devoted primarily to examples of successful applications of zinc die castings. Tips on design include use of rib, fillets, etc., to reduce cost. Also included are data on the alloy selection table.

The New Jersey Zinc Co.

Circle No. 337 on Inquiry Card-Page 17

Retaining Rings and Accessories

Catalog No. rr 9-52 is a 52-page compilation of complete engineering data and specifications for a broad line of retaining rings, pliers and accessory tools for assembly. Each ring series is designed to meet specific fastening requirements and problems.

Waldes Kohinoor Inc.

Circle No. 338 on Inquiry Card-Page 17

Rings with Many Applications

A new 20-page catalog contains application and specification data on a line of retaining rings including standard and special designs. Illustrations and data show how coil spring action in rings works to eliminate need for nuts, machined parts, etc.

Thompson Products, Inc.

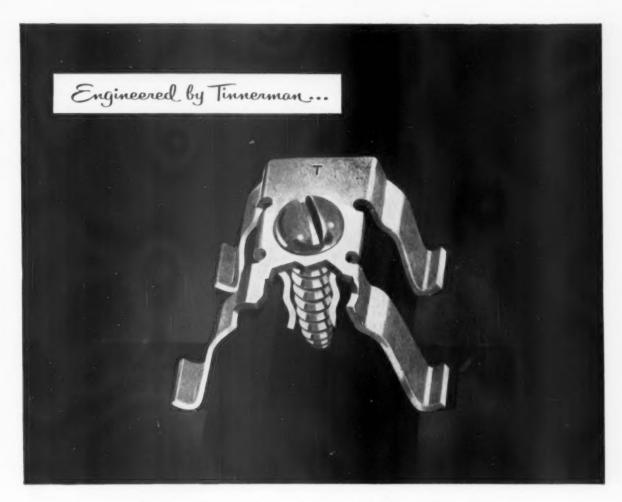
Circle No. 339 on Inquiry Card-Page 17

Screw Thread Inserts Help Save

Bulletin No. 748 contains design data and specifications for cutting costs with screw thread inserts and a new screw insert. Tables give complete ranges of sizes available. Installation procedures, condensed performance data, etc. are also provided.

Heli-Coil Corporation

Circle No. 340 on Inquiry Card-Page 17



6-fingered **SPEED CLIP**° holds glass panels tight, saves 46%!

This special Speed Clip fastens glass panels to aluminum extrusions with a grip that prevents slippage. Heat stays in, rain stays out of greenhouses and similar glass structures. Working closely with engineers of the Metropolitan Greenhouse Mfg. Corp., Brooklyn, Tinnerman developed this unique fastener that saves almost one-half the cost of former less effective assembly methods!

Installation is fast and simple. Two overlapping glass panels are positioned against the extrusion. A screw driven into the spring-steel Speed Clip spreads the two center fingers outward to grip the inner walls of the extrusion. No secondary fastening devices required—Speed Clips hold tight, yet are easily removed to permit replacement of glass.

This is another example of a fastener engineered by Tinnerman to satisfy special, complicated fastening problems. A Fastening Analysis of your products may produce a similar cost-cutting solution. See your Tinnerman representative soon.

TINNERMAN PRODUCTS, INC. BOX 6688 · DEPT. 12 · CLEVELAND 1, OHIO



Caiada: Deminion Fasheers, Limited, Remilion, Ostario, Grant Britain: Sinneoute Aerocesseries, Limited, Treferent, Wales, France: Simmonth, S. A., 3 rea Salomon de Rattachied, Servenes (Sales), Garmany: Mass Dickinger Godd "MECAND", Longuy-7-1898.



The cause of a big failure is often very small.

The live fibers in Western felts resist wear, age, and weather. They never fray or ravel. As long as your machine lasts, they will be there, performing faithfully.

Felt carries only clean filtered oil to all bearing surfaces. Used as a seal, felt keeps oil in, and dust out . . . permanently.

Our 57 years of experience is ready to help you. Your inquiry will place one of our Sales Engineers at your service. Write today.

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Felt WORKS



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MANUFACTURERS AND CUTTERS OF WOOL FELTS

For More Information Circle No. 863 on Inquiry Card-Page 17

Hydraulic Power Saves 5 Minutes per Casting

Hydraulic power is now being used to help cast copper at the U.S. Metal Refining Co., Carteret, N.J. In order to cast the copper in a reduced atmosphere, keeping it oxygen free, the mold must be tight against the bottom pour hole of the furnace. It was a slow unwieldy job tightening the mold. The answer was found when two Blackhawk Mfg. Co. Portor-Power hydraulic units were installed. Now the AS-50, four-ton units, with a tie-line between the output of the two hydraulic pumps allow both sides of the mold to go up evenly together. This new system is saving U.S. Metal 5 minutes per casting.

Circle No. 393 on Inquiry Card-Page 17

Wood-Cutting Saw Simplifies Cutting of Bent Tubing



North American Aviation, Inc., Columbus, Ohio, has simplified tube cutting after it has been bent to shape and heat treated by using a Walker-Turner radial arm saw. Cutting the tubing after it is bent and heat treated assures accuracy. An abrasive cutting wheel in the radial arm saw—conveniently used with a saw blade for cutting wood—cuts all sizes and shapes of aluminum, magnesium alloy and steel tubing.

Circle No. 394 on Inquiry Card-Page 17



SILENCE

The most silent rolling contact bearing in the world of today

EVERY TYPE-EVERY USE

- Ball Bearings
- Cylindrical Roller Bearings
- Spherical Roller Bearings
 Tapered Roller Bearings (Tyson

BKP INDUSTRIES, INC., PHILADELPHIA 32, PA.

For More Information Circle No. 864 on Inquiry Card-Page 17

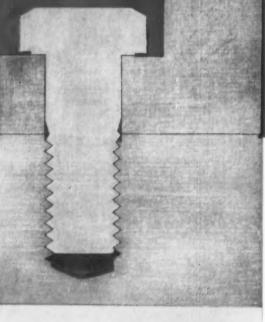
Engineered

TO REDUCE FASTENING COSTS

LAMSON



103 CAP SCREWS



SIZE ¼" to 1½" in diameter RANGE ½" to 12" in length

WAYS TO SAVE MONEY BY USING LAMSON 1038 CAP SCREWS:

For any given strength requirement, LAMSON 1038 HIGH TENSILE CAP SCREWS can do the job with a MINIMUM:

- 1. Initial fastener cost
- 2. Screw diameter
- 3. Screw length
- 4. Tapped hole diameter and depth

- 5. Drilled hole diameter
- 6. Handling expense
- 7. Assembly cost
- 8. Inventory expense

Write for the special FREE bulletin on Cap Screw analysis





Monel, Inconel, K Monel, 70-30 Copper-Nickel

Any time you need any of these or other nickel alloys, you can count on Philadelphia Bronze & Brass for prompt delivery. We can cast or forge pieces up to 5000 pounds, in our completely equipped foundry and forge facilities.

Over 30 years of experience in non-ferrous work is ready to serve you. Our responsibility can cover your full requirements, including pattern making, alloying of special materials, casting, forging and rough or finish machining.

Strict quality control assures adherence to your

specifications. We use certified materials from International Nickel Company for forgings. For castings, we alloy only virgin metals. Advanced test equipment is used for checking quality and uniformity.

Write today for our catalog describing our facilities and line of non-ferrous alloys . . . including high conductivity copper, Mallory alloys for welding, aluminum bronzes, silicon and manganese bronzes, and titanium alloys. For a quotation on your specific job, call us or any of the many field offices of P. R. Mallory & Co. Inc.

PHILADELPHIA BRONZE & BRASS CORP.

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Number 1 in a Screw Research Association Series on Industrial Statesmen

GEORGE ROMNEY

praises quality control

"Control that assures a good quality product is one of the most important assets any industrial organization can have. It takes consecutive purchases before

buyers realize that dependable quality is constant — but once they're really convinced, that good will lasts a long time. The more time you spend in improving production, and the more care you use in selecting top quality materials and parts, the easier it is for you to win your sales battle."

Leonge Formey

President, American Motors Corporation President, National Automobile Manufacturers Association

Positive Protection for YOU in the Quality-Control of Phillips Screws

Industrial Statesmanship You Can Depend On

Screw Research Association members sponsor the Phillips Cross-Recessed Head Standards Committee that sets up the strict quality control for these fasteners. This means common adherence to the best possible dimensional standards using recommended inspection gauges and gauging methods.

Product reliability in Phillips Screws demands

that they be entirely trouble-free. Deliver every advantage inherent in the Phillips Recess design. Recess dimensions must meet the close tolerance standards established by the Phillips Cross-Recessed Head Standards Committee.

Phillips Screws made by these companies improve your products and reduce your production costs.



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You can rely on these sources...for product reliability





Count on CONTINENTAL

for the HY-PRO PHILLIPS BITS that outlast other bits 2 to 1

Repeated tests made under assembly line conditions prove that Continental's HY-PRO Phillips Bits have an average service life double that of the best comparable bits. Reports from users, of their own experience on the job, show even greater margins of extra life for HY-PRO Bits, often as high as 4 to 1.





Best Comparable Bit

HY-PRO Phillips Bit

Each Bit Drove Same Number of Screws

HY-PRO Bits are FORGED for longer life







As shown in the diagrams above, the strong outer fibers of the bit blank, which are removed in milled bits (A), are retained in the Hy-Pro forged bit, and concentrated at the point (B) where highest strength is required.

Make your own tests—Continental Assembly Specialists will cooperate fully in setting up tests. Compare bit life on your toughest driving jobs. Figure all costs...you'll find Continental's HY-PRO Insert Bits and Holders your best buy for production efficiency, for assembly economy.

Only CONTINENTAL makes both PHILLIPS BITS and SCREWS



are made in types and sizes to fit all driving tools



HY-PRO Bits will give you a big margin of extra service life in assembly with any Phillips Screws. But, for maximum production efficiency, use the proved combination — HY-PRO Bits and HOLTITE Phillips Screws.

Precision control with the same Phillips master tools assures uniformly accurate fit of HY-PRO Phillips Bits and HOLTITE Phillips Screw recesses. It gives you the dependable fit you need in all production assembly, especially with power and automatic driving equipment, to avoid downtime, rejects, and weak fastenings. For full information, write: Continental Screw Company, 457 Mt. Pleasant St., New Bedford, Mass.



MEMBER OF THE SCREW RESEARCH ASSOCIATION

CONTINENTAL HOLTITE FASTENERS

HOLTITE PHILLIPS AND SLOTTED HEAD

WOOD * MACHINE * TAPPING * THREAD CUTTING * SEMS * NYLOK

HY-PRO PHILLIPS INSERT BITS AND HOLDERS



For More Information Circle No. 868 on Inquiry Card-Page 17

A complete line of Roller Bearings . . .

For every field of transportation and industry

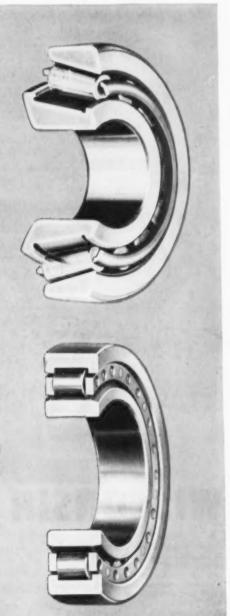


Job-tailored in a wide range of sizes to fit your specific needs

Aircraft? Automobiles? Earth-moving or farm equipment? Whatever you make, if your product uses straight or tapered roller bearings, Bower can meet your specifications exactly. For dependable Bower bearings are virtually custom-built to the job . . . engineered and sized to match any requirement.

Important, too, are exclusive Bower design features that assure long life, top performance, less maintenance. And when you specify Bower bearings you can always be certain of the highest quality materials and workmanship. These reasons, of course, are why Bower straight, tapered and journal roller bearings are used by leading manufacturers everywhere—for any application.

Let a Bower engineer give you full details of the complete Bower line. Call him in while your product is still in the design stage.





BOWER ROLLER BEARING DIVISION

FEDERAL-MOGUL-BOWER BEARINGS, INC., DETROIT 14, MICH.



The next time you require parts of any shape or size up to 10'' x 14'' x $\frac{1}{4}''$ thick of any stampable material send your print, sketch or part for an . . .



For More Information Circle No. 870 on Inquiry Card-Page 17



Hyster Co. specifies the new VH4 30 hp, Wisconsin Engine for the Model QC 20. In the next fork truck you buy, insist on this great new Wisconsin Engine, too. You get foolproof air-cooling, a smooth low-speed "idle" and incomparable horsepower in an engine of this size. Maintenance is simpler . . . no coolant to watch in freezing temperatures. Also, your Wisconsin Engine delivers more torque for more work, and its rugged construction assures longer engine life, more engine stamina. Write for complete data . . . Bulletin S-196.

WISCONSIN MOTOR CORPORATION
World's Largest Builder of Heavy Duty Air-Cooled Engines
MILWAUKEE 46, WISCONSIN

For More Information Circle No. 871 on Inquiry Card-Page 17

One-Third Increase in Motor Production



Century Electric Co. is using Erickson Precision expanding mandrels for stacking laminations for riveting or welding and for holding stator assemblies for accurate machining of the ends. Use of the Erickson mandrels has eliminated the need for grinding the bore and filling the slots. On the machining operation, production on a shop-designed mandrel was 60 pieces per hour and runout was a constant problem. With the new mandrels production jumped 33 1/3 percent with no loss of accuracy.

Circle No. 395 on Inquiry Card-Page 17

Tank Lining Material Changed; Costs Drop

Repeated repairs to a leadlined, wooden pickling tank created a problem for a steel processor. A steel replacement tank, lined with Plioweld by the Goodyear Tire & Rubber Co. and two courses of acid resistant brick, was installed. There have been no tank shutdowns for two years, except for normal cleaning, and maintenance costs have been cut by one-third.

Circle No. 396 on Inquiry Card-Page 17

FOR MORE INFORMATION
ON PRODUCTS IN
THIS ISSUE
USE INQUIRY CARD—PAGE 17



Forget about time zone differences when you have a rush order for unusual sizes of Holo-Krome Socket Screws. H-K has a shipping-room crew standing by till midnight to get those orders on the fastest train or plane heading your way. Your Holo-Krome distributor can phone in the order and have it filled immediately—no matter where you are or when he calls. That's what we mean by *improved* SAME-DAY SERVICE.

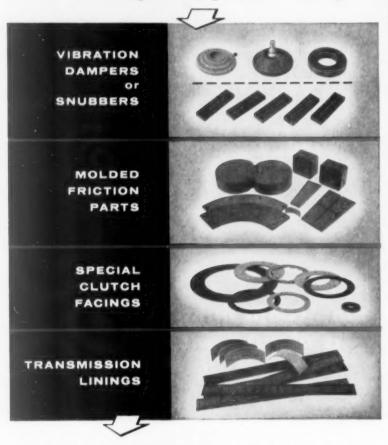
For the finest in socket screw products—and service—look to Holo-Krome!

HOLO-KROME OF A COMP. HARTFORD 10, CONN.

For More Information Circle No. 872 on Inquiry Card-Page 17

let WORLD BESTOS help you

in the design and production of



- World Bestos offers you more than 30 years' engineering and manufacturing experience in the production of molded friction parts. Chances are our immense resources and facilities can supply you with molded parts and friction components—to meet your requirements—at a savings in both time and money.
- Send your blueprints (or samples) for prices and delivery information to WORLD BESTOS, Industrial Products Section, New Castle, Ind., Phone: 2360. Write for free illustrated folder.

WORLD BESTOS NEW CASTLE, INDIANA

Firestone
TIRE & RUBBER COMPANY

Industrial and Automotive Brake Blocks and Linings • Transmission Linings • Special Clutch Facings • Vibration Controls • Sheet Packing

For More Information Circle No. 873 on Inquiry Card-Page 17

Drying Time Reduced 50%, Production Scheduling Improved



Union Tank Car Company tried hot spray as a means of improving quality control. Union Tank's paint department now gets up to twice the mil thickness with each coat, and drying time has been reduced by 50%. Quality control has been tremendously improved and the hot spray has made possible production line scheduling of tank car painting. With conventional spray, painting variables and overnight dry made scheduling almost impossible.

Circle No. 397 on Inquiry Card-Page 17

50% Less Weight With Forging

Railroads provide a good example of how useful forgings can be. In the case of a forged railroad car I-beam, the weight has been cut to half what it formerly was and yet the same strength remains. Also forged roller side bearings have solved a maintenance problem by providing greater resistance to wear and failure.

Circle No. 398 on Inquiry Card-Page 17

Drill Breakage Reduced 90% In High Speed Operation

The exceptional spindle accuracy of the Precise Super 30 Grinder - Miller reduced drill breakage 90% at the International Register Company in Chicago. Small tool costs and the time lost in drill replacement were thereby saved helping to increase the hourly production rate substantially. The operation was high speed drilling (25,000 rpm) of a zinc die-casting with .050" diameter drill.

Circle No. 399 on Inquiry Card-Page 17



Another leading manufacturer using CHICAGO fasteners



High-powered Mercury Outboards demand fasteners that stay put

Boating enthusiasts testify to the flashing power and rugged durability of famous Mercury Outboard Motors. Now comes the most powerful production outboard yet built—the mighty new 60 h.p. "Mark 75". CHICAGO SCREW supplies Kiekhaefer Corporation, maker of Mercury Outboards. Understandably, we're proud of our long relationship with this fine firm.

What we hope you'll remember is this: You, too, can rely on CHICAGO fasteners for unfailing performance. So next time you order, specify CHICAGO.

Your local CHICAGO SCREW COMPANY distributor is eager to serve you. He and our engineers will be happy to help solve your fastener problems. He'll also tell you about our unusually complete line, our quick delivery. Or, write direct for our latest standard products brochure.



Fast service on 4,000 socket screw products, hexagon head cap screws and other related fasteners.

THE CHICAGO SCREW COMPANY

DIVISION OF STANDARD SCREW COMPANY . ESTABLISHED 1872

2620 WASHINGTON BOULEVARD, BELLWOOD, ILLINOIS For More Information Circle No. 874 on Inquiry Card—Page 17

on STAMPINGS is as simple

Our ability to use the best of three stamping techniques, each our own exclusive development, assures lowest possible cost on any quantity—one to a million or more.



NO DIES! Our machine cut method, applying custom-built slitters, cutters, saws, files and stock punches—PLUS special techniques and skills—produce these small quantities at very low cost.



TEMPORARY LOW-COST

TOOLING! To produce something more than a few, but less than high production quantities, our simple contour dies—PLUS special purpose presses—keep costs low.



You can rely on it ... WE LOOK

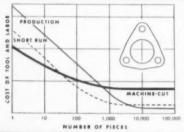
AT ALL THREE-then deter-

mine the best method for fast,

efficient, low-cost service. Let us quote on your next Stamp-

ings job.

MODEST DIE CHARGES on larger quantities! Here is where our regular production toolings apply to advantage ...to deliver high quantity Stampings, and at lowest possible unit cost.



O LAMINATED OF

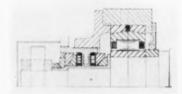
Free 12-page booklet shows how to save on stampings...write for it.

STAMPINGS DIVISION

"One Piece or a Million" 2405 Union Street, Glenbrook, Conn.

For More Information Circle No. 875 on Inquiry Card-Page 17

Double-Acting Thrust Bearing



A double-acting aligning thrust bearing has been developed for the most severe conditions where potential misalignment and heavy but intermittent thrust loads from either direction are present. It can be used for example, in assembly for steel forming passes. One-inch diam, rollers are staggered to insure even wear distribution-three 1/2" long rollers in each of ten slots and two 34" long rollers in ten alternating slots. Bearing thrust capacity at 100 rpm is 114,275 lb, according to the manufacturer, Rollway Bearing Co., 541 Seymour St., Syracuse, N.Y.

Circle No. 400 on Inquiry Card-Page 17

Snap-Acting Thermostat Withstands Vibration



A snap-action, disc-type thermostat for applications where maximum shock and vibration resistance are required, has been placed on the market by the Metals & Controls Corp., Spencer Thermostat Div., Attleboro, Mass. The units feature a notable disc thermal element, fine silver electrical contacts and a complete hermetically sealed assembly. A copper-nickel plated steel casing protects all parts from contamination and moisture to assure precise circuit operation. Applications range from aircraft controls to heaters and servo mechanisms. Temperature settings range from -20 F to 400 F.

Circle No. 401 on Inquiry Card-Page 17

NEW LOW COST POWER RELAY HAS 6 SPECIAL "EE" FEATURES



Where low cost and trouble-free operation are vital factors for appliance application, the *R-B-M* 75 is an ideal relay. Special ratings are available for inductive or motor loads.

The R-B-M Type 75 Appliance Relay is available either single pole normally open or two pole normally open. It is furnished with either screw or quick connect terminals.

A low wattage coil can be incorporated into the relay if ambient temperatures are higher than normal. Coil terminals are of the quick connect type.

Write for Descriptive Bulletin 1030

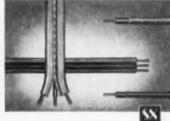


RBM DIVISION

Manufacturers of Magnetic LOGANSPORT, INDIANA
Controls and Devices



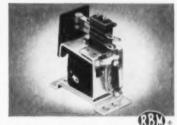
other outstanding
*ESSEX ENGINEERED
production proven products



REFRIGERATION WIRES

The complete line of "Essex Engineered" internal, lighting circuit, heater and lead wire ... plus flexible conduit, power supply cords and thermostat cables, are approved by UL and CSA.

Wire and Cable Division Fort Wayne, Indiana



GENERAL PURPOSE RELAYS

A.C. or D.C. General Purpose Multipole relays. For circuit switching of electrical interlocking remote control devices. Features special cross-bar contacts for low-voltage, low current circuits or button type contacts for power switching circuits. Request Bulletin No. 1060.

R-B-M "Control" Division



COILED CORDS

The "spring" in Coiled Cords automatically synchronizes with moving components that are electrically powered. There are no looping, tangling cords in the way...because Coiled Cords extend and retract as needed. Write for new literature.

Cords Limited Division DeKalb, Illinois





We're proud that Bristol Multiple-Spline socket screws were selected for use in the NIKE, first truly operational U. S. guided

First, because NIKE and its complex guidance equipment are so important to our national defense

Second, because we know that these Bristol Multiple-Spline socket screws met the most exacting requirements for holding power against shock and vibration. The Bristol-originated Multiple-Spline socket allows these screws to be wrenched up exceptionally tight without danger of stripping the socket.

Bristol Multiple-Spline socket screws, both set and cap, are ideal for critical applications in a host of products, in addition to missiles and guidance equipment: communications equipment of all types, shavers, instruments, vending machines, cameras, desk calculators—wherever ability to take extra wrenching torque is a factor.

Find out about them from your industrial distributor today.

Precision socket screw manufacturers since 1913



THE BRISTOL COMPANY, Socket Screw Division, Waterbury 20, Conn

For More Information Circle No. 877 on Inquiry Card-Page 17



can fit the puzzle together!

Puzzled about an economical way to transmit drive or control between parts that must be mounted in hardto-get-at spots? An S. S. WHITE flexible shaft is often the low-cost answer.

For example, a customer of ours had the problem of taking power from the wing-mounted engines of a plane and transmitting it to cockpit tachometers. The solution to the puzzle was easy. S. S. WHITE power drive flexible shafts were run along fuselage contours,

drive flexible shafts were run along fuselage contours, and around struts and frames — with no difficulty! Is there a problem in your own product that can be dependably solved by S. S. White flexible shafts? Every day, in many new ways, the needs of industry are served by S. S. White's wide range of quality flexible shafts. They can often completely eliminate a complete seatest water. complex control system . . . save you money in costs and assembly time. Our engineers will be glad to advise you in selecting and applying S. S. White flexible shafts to your product. Write today for further information.

FOR YOUR PURCHASING SOURCES FILE: Bulletin 5608, containing data, and money-saving applications of S. S. Whitte flexible shafts. Write today for your copy!





S. S. White Industrial Division, Dept. P.

10 East 40th Street, New York 16, N. Y Western Office: 1839 West Pico Blvd. Los Angeles 6. Calif.



For More Information Circle No. 878 on Inquiry Card-Page 17 PURCHASING



SEND FOR FREE 6-page Small Gearing Guide. It describes 80 types and applications. Contains useful charts... a valuable aid to anyone interested in Small Gearing. Use company letterhead, please. No obligation, of course. Write today!

41 Years of Specializing in Small Gearing

For More Information Circle No. 879 on Inquiry Card-Page 17

want better

- HEAT RESISTANCE
- ARC RESISTANCE
- STRENGTH & WEAR RESISTANCE
- STABILITY

in molded electrical parts?

Today's new Ace Hard Rubber compounds are far more than "just good insulators" in electrical-mechanical parts. Look at these representative values: Tensile strength to 10,000 psi, moisture absorption as low as 0.04%, power factor 0.006; arc resistance as high as 190; dielectric strength to 600 v/mil; surface resistance over 108 megohms; heat resistance to 300 deg. F. Compounds can be blended to give just the right combination of properties for each job...economically, too, because it's never necessary to "over-design." Practically any size and shape can be molded, even with complicated inserts. Machinable to close tolerances, with excellent dimensional stability. Why not check up on today's new compounds for your designs?

Design hints covering wide variety of

Ace hard rubber, Ace plastics, and

Fubber-plastic blends are available in 80-pg.

Ace Handbook. Write for your copy today.









ACE rubber and plastic products

AMERICAN HARD RUBBER COMPANY

For More Information Circle No. 880 on Inquiry Card-Page 17

Seal Stops Leakage on Rotating Shafts



A self-contained, compact seal for use in all types of jet water pumps, oil pumps, reduction units, etc., can be used on any rotating shaft to seal any liquids that will not attack the Buna-N flexible or the brass metal parts. Face of the seal, capable of withstanding high loading and heat, is manufactured from filled true carbon to prevent porosity. The seal is recommended to operate against pressures up to 100 psi. It is available for 5%" and 34" diam shafts from The Garlock Packing Co., 400 Main St., Elmira, N.Y.

Circle No. 402 on Inquiry Card-Page 17

Stainless Alloy Improves on 18-8 Type



A high-strength cast alloy, designated CD-4MCu, answers industry's need for a corrosion-resistant metal with better mechanical properties than the conventional 18-8 stainless steels, according to the Alloy Casting Institute, 286 Old Country Rd., Mineola, N.Y. Tests showed that (Please turn to page 360)

ONE OF A SERIES . . .

What makes
Hyatts run
smoother
and longer?

CARBURIZED INNER RACES

From a fatigue life standpoint, the inner race is the critical member of a roller bearing, because the smaller area of contact between rollers and inner race concentrates the loads upon it. That's why HYATT goes to the added expense of carburizing every inner race—to assure you the performance and fitting advantages detailed at the right.

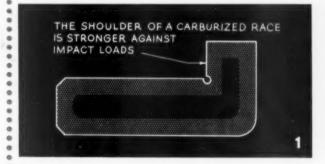
You will find full selection and application data in HYATT Catalog 150, or call your nearest HYATT Sales Engineer. Hyatt Bearings Division, General Motors Corporation, Harrison, New Jersey. Sales offices at Harrison, Pittsburgh, Detroit, Chicago and Oakland, Cal.

HEAVIER INTERFERENCE FITS

Resistance to relative movement between inner race and shaft is vital to good performance. So HYATT makes practically all inner races of carburizing type nickel alloys instead of through-hardened steel. After carburizing and heat-treating, the outer surface has the hard wear resistance so necessary for an efficient bearing. The low-carbon core remains tough and ductile to permit much heavier interference fits than are otherwise possible.

TOUGHER FLANGES, GREATER LOAD CAPACITY

Carburizing also enables HYATT to obtain substantially tougher inner race flanges. Tests show the shoulders will withstand considerably greater impact loads (Figure 1). The carburizing process has also been found to increase the load-carrying capacity of the race by building up compressive hoop stresses in its external fibres during quenching.



SIMPLER, LOWER-COST MOUNTING

Another advantage of HYATT'S heavier interference fits is the elimination of all auxiliary holding devices. When the carburized inner race is either pressed or shrunk on the shaft according to HYATT fitting recommendations, it becomes practically an integral part of the shaft itself. This permits mountings of the simplest type and lowest overall cost.





HY-ROLL BEARINGS
FOR MODERN INDUSTRY

SPECIAL MACHINES

2 Reasons Behind Brad Foote Quality

The craftsman shown below is loading a gear into one of the latest additions to BRAD FOOTE'S long list of special-purpose machines. The only one of its kind in existence, this new shaver can straight or crown shave gears up to 51" in diameter. Normally accommodating gears with shafts up to 142" between centers, it can handle even longer shafts by using special journals. Specially designed, the new machine will shave either internal or external gears.



• Costly special machines such as this are important in providing the extra quality at lowest cost which is the hallmark of BRAD FOOTE gears. But these are only part of the story. Even more important, perhaps, are the men who man these machines—experienced craftsmen with long experience in producing gears to meet the most exacting and specialized requirements.

 BRAD FOOTE'S facilities are at your disposal whether you need one gear or a long production run. We would sincerely appreciate an opportunity to discuss your requirements or quote on your specifications. Your inquiry will receive prompt attention.



BRAD FOOTE GEAR WORKS, INC.

1303 South Cicero Avenue · Cicero 50, Illinois Bishop 2-1070 · Olympic 2-7700 · TWX: CIC-2856-U

subsidiaries

AMERICAN GEAR & MFG. CO. PITTSBURGH GEAR COMPANY
Phone: Lemont 920 Phone: SPalding 1-4600
Lemont, Illinois Pittsburgh 25, Pennsylvania

For More Information Circle No. 882 on Inquiry Card-Page 17

Continued from page 358) the ductility of the alloy, even at 300 Brinell hardness, showed tensile strength of 140,000 psi, and yield strength of 100,000 psi. Properties for comparable 18-8 alloys would be 77,000 psi tensile and 37,000 psi yield and 150 Brinell hardness. Its corrosion rate is shown to be of the same order of magnitude as 18-8 stainless in boiling 65% nitric acid.

Circle No. 403 on Inquiry Card-Page 17

Counterbalance Cylinders Protect Power Presses



Counterbalance cylinders have been placed on the market with universal installation applications for all power presses. They provide the same protection to a punch press as a door check on the average swinging door. The cylinders can be installed in any one of four universal methods: rod, flange, side base or pivot mounting. According to the manufacturer, The Dayton Rogers Mfg. Co., Minneapolis 7, Minn., the counterbalance cylinders eliminate ram drop, punch press brake wear, over-riding of ram, and snap through or breakthrough.

Circle No. 404 on Inquiry Card-Page 17

FOR MORE
INFORMATION ON
PRODUCTS IN THIS
ISSUE USE INQUIRY CARD
PAGE 17

For More Information Circle No. 883 on Inquiry Card—Page 17→ PURCHASING



Where the "stress" is on strength

BETTER than 4500 horsepower in today's Diesel units can send crack trains highballing down the main track at close to 100 mph.

Pounding up and down hundreds of thousands of miles a year . . . starting and stopping countless times . . . whipping around curves . . . this is service that subjects these \$50,000 pound "iron horses" to fearsome stresses.

Naturally, the thousands of standard nuts and bolts that keep these powerful streamliners together must be absolutely reliable . . . must be strong, flawless.

RBAW - A MAJOR AND RELIABLE SUPPLIER A leader in its field for over 111 years,

RBaW continues to turn out the finest fasteners for the nation's vital railroad industry and, in fact, for virtually every major industry.

Modern facilities, new techniques, long experience ... all combine to make RB&W fasteners truly the "strong point of any assembly."

CONTACT THE RBAW "FASTENER MAN"

Proper application of standard fasteners can save you money. Ask the RB&W"Fastener Man" to show you how. Contact your nearest

RB&W office.





RUSSELL, BURDSALL & WARD **BOLT AND NUT COMPANY**

Plants at: Port Chester, N. Y.; Coraopolis, Pa.; Rock Falls, III.; Los Angeles, Calif. Additional sales offices at: Ardmore (Phila.), Pa.; Pittsburgh; Detroit; Chicago; Dallas; San Francisco. Seles agents at: Milwaukee; New Orleans; Denver. Distributors from coust to coust.

RBAW FASTENERS - Strong Point of any assembly



When your stamped parts need to be welded, drilled, tapped, riveted or assembled... we are equipped to do it.

Many of our customers use this extra service to help meet production deadlines, to streamline their manufacturing and to place responsibility

Remember this plus-beyond-theprice the next time you buy stamping components... and let us see your prints!

A brochure is yours for the asking!



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DETROIT STAMPING COMPANY

Established 1915

408 Midland Ave., Detroit 3, Mich.

"America's Leading Joh Stamping Manufacturer"

Look to Detroit!

is our middle name

Circle No. 884 on Inquiry Card—Page 17

Pin-Grip Drive Rivet Fastens Effortlessly



By merely hitting the pin in a pin-grip rivet, made by Star Expansion, 142 Liberty St., New York 6, N. Y., even an unskilled person can do a professional riveting job of fastening metal to metal or metal to wood. No special tools are required-merely a hammer. The device is a rivet type expansion fastener, consisting of a slotted, bored rivet body and a knurled pin made up as an integral unit. The knurls on the pin hold fastener together. After expansion, they lock pin in place. When pin is driven in, bottom of rivet expands in four directions exerting a powerful pull-up ac-

Circle No. 405 on Inquiry Card-Page 17

High Speed Oil Hole Drills



Designed for use on production runs in screw machines or turret lathes, a complete line of high speed oil drills with continuous holes drilled through the body and shank of the tool is announced. The holes permit lubricant or air to pass freely to the drill point where it acts as a coolant as well as a force to eject (Please turn to page 364)

For More Information Circle No. 885 on Inquiry Card—Page 17→



We're older than we look. In fact, our firm is 50 years old this year, and while we haven't actually taken to tinting our hair gold, we are doing our best to let everyone know about this, our golden anniversary. Because we think it's something of an accomplishment - 50 years of uninterrupted progress and growth and leadership in gear-making that have made our reputation "good as gold." That reputation has been as much the result of adhering to some old-fashioned ideas about craftsmanship, service and attention to details as it has been the result of aggressive pursuit of the latest technological advancements in gear manufacture. It's a reputation we've worked hard to earn in the 50 years past, and one we'll work equally hard to perpetuate in years to come . . . a reputation for producing the best in custom "gears ... good gears only."

THE CINCINNATI GEAR CO.

Fifty Years of "Gears-Good Gears Only"



For More Information Circle No. 886 on Inquiry Card—Page 17→ PURCHASING

Meeting the big change in industry with the big change in bearings—TIMKEN and the Moto-Mated Way



How to cut your bearing cost, and get a better bearing

EVERYWHERE in industry you see them—a whole new breed of machines that are setting new standards of productivity. Precision machine tools, trucks, cranes—machines that place new demands on components. And meeting these demands is the big change in bearings—product of a whole new concept in bearing design, manufacture and supply: the Moto-Mated Way.

New Timken® Moto-Mated bearings are smaller, to permit more compact designs. Lighter, to cut weight. Capacity-packed, to take full loads. Lower-priced to offset climbing costs. And manufactured by methods new to the bearing industry, they're available in almost unlimited supply.

Automakers already are saving 14.6% on bearing costs by using Timken Moto-Mated bearings in millions of front wheels. And in other industrial applications, these new bearings are saving as much as 15% over previous designs.

You can realize important savings by redesigning present applications to the new bearings. As your use increases, we'll pass along our manufacturing savings to you.

Available in bore sizes ¼", ½", 1½", 1¼" and 1¾", new Timken Moto-Mated bearings cut your bearing costs and give you a better bearing. Our representatives will be glad to tell you more about them. The Timken Roller Bearing Company, Canton 6, Ohio. Canadian plant: St. Thomas, Ontario. Cable address: "TIMROSCO".

TAPERED ROLLER BEARINGS



MR SERIES

Medium duty power relay-high capacity but small in size



LB SERIES
Low Cost Plate
Circuit Relay

KCP SERIES

Plate Circuit Relay enclosed in plastic case with plug-in terminals



LM SERIES

Plate Circuit Relay many contact combinations



4 SS SERIES

Super sensitive relay, operates on less than 10 M W



SP SERIES

Heavy duty shockproof relays. Operate in any position



operation

KL SERIES

Light duty, multiple

contact relay



PR SERIES

Heavy duty power relays for across the line power circuits





P&B Your one best source for all

RELAYS

Here are only a few of the more than 40 basic P&B relays.

Each of the 40 can be modified in a wide variety of ways.

This means there is a P&B relay for nearly every conceivable application.

Custom modification of relays to exact specification is a P&B specialty—thus you have one dependable source for ALL your relay needs. P&B offers you: 1. PROVEN DESIGN. Twenty-five years of relay experience. 2. LOW COST. Modern engineering, production and testing methods keep cost down. 3. FAST DELIVERY. Many basic relay models are shipped from stock.

PAB RELAYS AVAILABLE AT MORE THAN 500 DISTRIBUTORS IN ALL PRINCIPAL CITIES



For More Information Circle No. 887 on Inquiry Card-Page 17

(Continued from page 362)

chips and dirt. The oil hole drills, a product of Whitman & Barnes, Plymouth, Mich., are regularly stocked in straight shank taper length sizes from 7/16" to 1½" by 64ths. Shank ends are tapped for use with threaded pipe connections.

Circle No. 406 on Inquiry Card-Page 17

Machine Plates Small, Medium Sized Parts

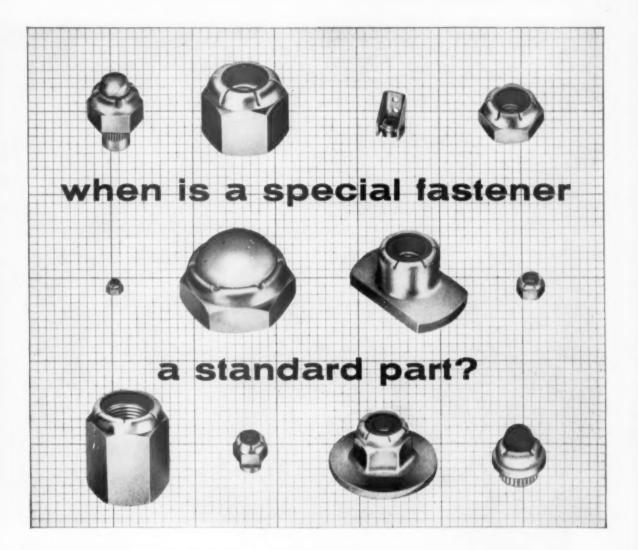
After three years of experimenting, a small compact plating and processing machine is in production in answer to the need for a plating unit for small and medium sized parts. It also fills the bill for a small automatic plating machine with a big capacity for finishing larger parts that do not require extremely high production. It has proved ideal for plating electrical parts, door hardware, pistons, and any number of small appliances. It has also performed satisfactorily in alodine processing of a variety of metal plating, according to the manufacturer. Frederic B. Stevens, Inc., 1800 18th St., Detroit 16, Mich.

Circle No. 407 on Inquiry Card-Page 17

Damaged Segments Replaced in Grinding Wheel

An expanding-type grinding wheel is now available in which the core never needs to be replaced. A series of separate, replaceable rubber segments grip the coated abrasive and form the grinding surface of the wheel, trade named, "Flexicore." As segments become worn or damaged, they can be replaced singly or in groups at a very low cost. Thus, the core does not have to be replaced and it is no longer necessary to scrap an expanding wheel when a single segment is damaged. Nu-Matic Grinders, Inc., 8224 Carnegie Ave., Cleveland 3, Ohio, make the wheels in 3", 4", and 5" and 6" diameters.

Circle No. 408 on Inquiry Card-Page 17



The answer is easy: when it's an ELASTIC STOP® nut. ESNA makes and stocks more types, shapes and sizes (in a larger variety of materials and finishes) than any other lock nut manufacturer. In fact, all of the nuts shown here are standard production parts.

Every one of these fasteners is self-locking anywhere on the bolt, will remain tight under severe vibration . . . yet they can be dis-assembled and re-used many times. What's more, the performance of the red

locking insert has proved itself in critical applications on American heavy industrial equipment for more than twenty-five years.

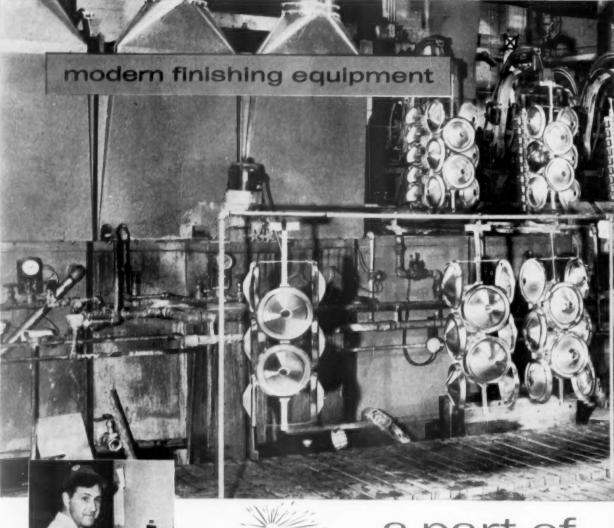
All ESNA nuts are carefully controlled in manufacture as to finished dimensions, class of thread fit and finish. This control pays off—in uniform quality every time you order.

Simplify and speed up your purchases by sending for a free catalog on ESNA's extensive line.

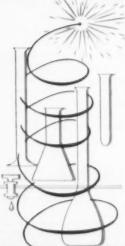
ELASTIC STOP NUT CORPORATION OF AMERICA



Elastic Stop Nut Corpe	oon for Complete Catalog pration of America (auxhall Road, Union, N. J.
Gentlemen: Please send of STOP nut catalog.	ne your free, complete ELASTIC
Name	Title
Firm	
Street	



Gilbert Gleichner, "pushbutton electro-chemist" and operator of our newest Stevens automatic anodizing unit. Bert says he's getting more done, better, in less time, than he ever has before.



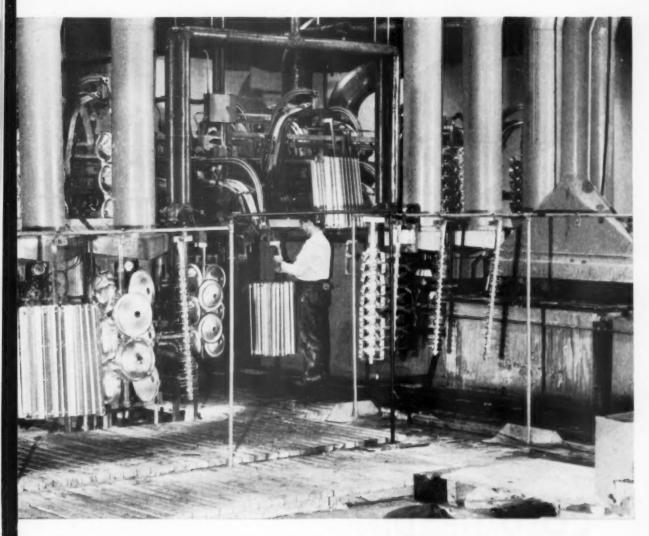
...a part of

FOR

This mechanical wonder, a completely automatic anodizing unit, can carry thousands of component parts through the entire anodizing process at a predetermined cyclical rate that sets up optimum immersion for the job in hand, ruling out the human element of variation in manual and semi-automatic operation!

Benefits to you are obvious. A finer anodic finish in natural, bright, or color...at lower cost... with on-schedule delivery. And, best of all, components in *final* form, ready for





our complete facilities

FABRICATING YOUR COMPONENTS

application to your product on your own assembly line.

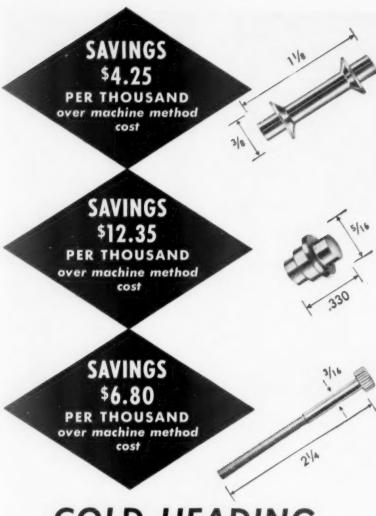
Why not review your component requirements? If it can be made of aluminumstamped, drawn or rolled-formed-and you need large volume, high-speed, quality production, get in touch with us. The anodic unit above is one of our many finishing units capable of a variety of mechanical, chemical finishes. All part of our mill-to-final-finish facilities, at your service.



CONTRACT DIVISION **ALUMINUM GOODS MANUFACTURING COMPANY**

MANITOWOC, WISCONSIN





COLD-HEADING

SAVES YOU MONEY ON JOB-DESIGNED SMALL PARTS AND FASTENERS

Cold-Heading is the most versatile, most economical method for producing your fasteners and small parts. These case histories are typical of thousands of money saving jobs we've done for our customers. May we quote on your requirements? Write today for the Hassall Catalog.

John Hassall, Inc., P.O. Box 2268 Westbury, Long Island, N.Y.

Hassall

NAILS, RIVETS, SCREWS

AND OTHER COLD-HEADED

SASTENERS AND SPECIALTIES

For More Information Circle No. 890 on Inquiry Card-Page 17



Dow Corning Corp., Midland, Mich., announces "Silastic LS-53," a fluoro-silicone rubber that withstands swelling by aircraft fuels and oils. Its properties are most needed in "O"-rings and other seals where the rubber must perform over temperature ranges from -80 F to over 400 F and still resist swelling and attack by gasoline, jet engine fuels, hydraulic fluids and engine oils. It is said that fabricators used to handling silicone rubbers will find no difficulty in making parts out of this heat-resistant formulation. Hardness, tensile strength and elongation are comparable to all-purpose silicone rubbers. Circle No. 409 on Inquiry Card-Page 17

Holt Head Fasteners Tamper-Proof Equipment



The holt head fastener was designed for pan head screws and insures maximum driving power at the three points around the outside driving contours. The screws are adaptable to building tamper-proof equipment. For example, they afford protection in camera assemblies, where it has become necessary to protect such units from tampering and also to insure the return, for adjustment, the complete product in the same condition as originally shipped. The holt head fastener is obtainable for steel and machine screws with 3 or 4 slots from Central Screw Co., Dept. H, 3501 South Shields Ave., Chicago 9, Ill.

Circle No. 410 on Inquiry Card—Page 17
For More Information Circle No. 891
on Inquiry Card—Page 17→

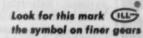
PURCHASING



Wherever gears are used, the name ILLINOIS GEAR is known and respected. Manufacturers of fine equipment always specify them. ILLINOIS GEARS are precision built with quality as the first consideration.

An outstanding example of the type of equipment in which ILLINOIS GEARS are performing a vital function is the new Giddings & Lewis Model 1210-FUAR Boring Mill - the world's largest horizontal (floor type) boring, drilling and milling machine with 10" spindle, 18" square underarm and weighing over 200 tons.

Learn for yourself how ILLINOIS GEAR can help you select the right gears for your requirements from America's most complete line of gears.

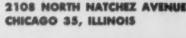




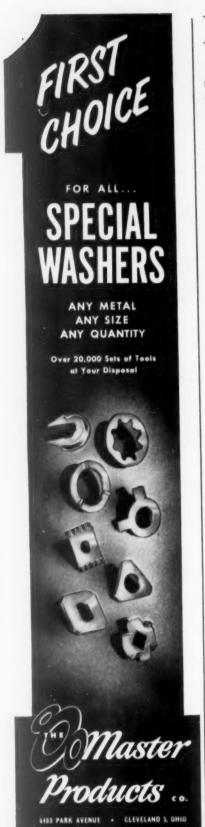
GEAR & MACHINE COMPANY

2108 NORTH NATCHEZ AVENUE









For More Information Circle No. 892 on Inquiry Card—Page 17

Industrial Developments

Julius Blum & Co., Inc., Carlstadt, N.J., has just completed an addition to its plant, increasing its floor space to 60,000 square feet. This firm is a nationally known producer and distributor of stock components for architectural metal work including aluminum, bronze and steel ornamental products, mouldings, bars, shapes, and tubing and of metal working machinery and extruded plastic tubing, rod and sheet. The company moved from New York City to its own building at the present location in 1953, but through addition of many new products, it has expanded its volume to an extent which made a 50 percent increase in floor space necessary. Among new stock items recently introduced is a line of stainless steel square tubing, rectangular tubing, and roll formed angles and channels not previously available from warehouse stock. The addition consists of a single bay, 60 ft. x 310 ft., served by an overhead crane, railroad siding and truck drive-through. It will serve principally for storage and shipping of large size square and rectangular steel tubing, of which this firm is a principal supplier.

Datascan, Inc., Newark, N.J., a corporation engaged in the manufacture of components and equipment for the industrial control and data handling field, has begun a manufacturing operation in Little Falls, N.J., at 48 Notch Road. The corporation is now manufacturing a line of delaved signal memory devices for use in conveyer control systems and industrial production and test equipment. It is set up to design, develop, and construct data monitoring and processing systems, industrial control systems, and automatic high speed testing-sorting systems.

FOR MORE INFORMATION
ON PRODUCTS IN THIS ISSUE
PLEASE USE
INQUIRY CARD—PAGE 17

For Compression Molding



come to KaJ

K & J has always specialized in the compression molding of those materials which maintain their stability, under heat, after molding. But materials vary in their properties — and it is in the selection of the proper molding compounds for your job that K & J plastics engineers can be most helpful. Send for our brochure, "A Service to Users of Compression Molding."



KUHN & JACOB MOLDING & TOOL CO.

1202 Southard St., Trenton 8, N.J.

Represented by

S. C. Ullmen 55 West 42nd St., New York, N. Y. Phone PEnn 6-0346

Wm A. Chalverus Carson Road, Princeton, N. J. Phone 1-3170-J2

Wm. T. Wyler Bex 126, Stratford, Conn. Phone Bridgeport 7-4293

For More Information Circle No. 893 on Inquiry Card-Page 17

PURCHASING



Progressive News



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NOW! FROM PROGRESSIVE

Here Meller divided and provided and provide

Now you can get from PROGRESSIVE Slotted Tapping Screws with an extra customized touch — Slotted Tapping Screws which are custom-made to your order. This means: (1) specifically made for you — not bin stock parts; (2) fast, custom-handling of every order; plus (3) the double economy of low initial cost and the savings in your assembly operations possible only with high precision, torsion-tested fasteners.

STANDARDS AND SPECIALS CUSTOMIZED FOR YOUR NEEDS

THE PROGRESSIVE MFG. CO.

Division of The Torrington Company 56 Norwood Street, Torrington, Connecticut



SEMS BY Everlock.

HOLD TIGHTER! COST LESS!

Ever hear someone say "they don't make 'em like they used to"? Well, it's a good thing they don't! Modern autos, for instance, last up to three times as long as the cars of twenty years ago.

Sems by Everlock are one of the reasons. Every modern auto has a thousand and one places where Sems grip tight for the lifetime of the car. The illustration shows Sems used on a station wagon tailgate. Often used for both business and pleasure, station wagons get abuse and vibration that are sure to work old-time fasteners loose. But, Sems by Everlock actually hold tighter the more you try to shake 'em loose.

Here's Why You Should Order SEMS by Everlock . . .

- 1. Cut costs by eliminating separate handling of screw and washer.
- 2. Simplify ordering by reducing the number of items carried and quantities stocked.
- 3. Eliminate waste due to lost lock washers.
- 4. Eliminate rejects due to omitted lock washers.
- 5. Fast delivery on a wide range of sizes, types and finishes.



Other Everlock fasteners that feature the exclusive full chisel edge locking action include Free Lock Washers, Locknuts and Terminals.

THOMPSON-BREMER & CO.

Dept. N-520 N. Dearborn Street . Chicago 10, Illinoi Subsidiary of AMERICAN MACHINE & FOUNDRY CO.

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FREE CATALOG ..

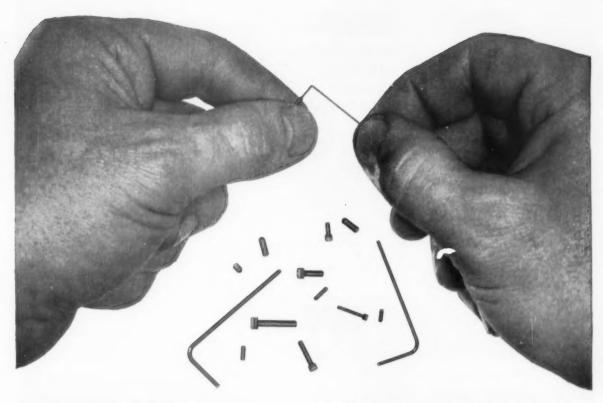
Gverlock

INDUSTRIAL FASTENERS

Product

Norton Co., Worcester, Mass., has broken ground for a new \$1,500,000 refractories plant at Worcester. When completed in January, 1958, the plant will provide modern facilities for the straight line production of heavy refractories for the high temperature applications of industry. It will contain 80,000 square feet of manufacturing space on two floors, located adjacent to existing tunnel kilns which have fired products made in the present plant, a quarter of a mile away. Considerable handling will be eliminated by combining in one plant operations which are presently done in several buildings. The grade at the site will permit receiving at the second floor level and shipping via truck or railroad from the first floor. Mixing and forming operations will be done on the second floor. After firing in the adjacent kiln building, the refractories will be finished (where required), inspected and packed for shipment on the first floor. This plant is part of a major expansion program which Norton Company started last year when ground was broken for a new central service building. Other production facilities and expansions of present facilities are now in the planning stage.

A change in the official name of the Continental-Diamond Fibre Division of The Budd Company, Inc., Newark, N.J., has been announced. The new corporate name is Continental-Diamond Fibre Corporation. This name change does not affect in any way the relationship of Continental-Diamond Fibre with The Budd Company and it remains a wholly owned subsidiary of that firm. Employees of the corporation are also unaffected by the name change. Acquired as a wholly owned subsidiary of company in July 1955, the Continental-Diamond Fibre Corporation has engaged in a substantial expansion and modernization program over the past 18 months. Spearheaded by a capital expenditure of over \$3,750,-000, the firm has established a long range improvement program.



If you're miniaturizing . . . you'll save space, time and money with Allen Minicaps and Minisets (#0 thru #3 dia.)

These miniature Allen Hex Socket Cap and Set Screws will let you scale down your product sizes even farther. They're made from Allenoy special alloy steel — so strong that you can safely specify fewer screws or smaller sizes.

Allen Minicaps and Minisets are tiny, but very tough! — true Allens, with deep, clean, strong sockets and uniform Class 3A threads. Minicaps have the Allen knurled "Grip-Head" and are trimmed both on top and *under* the head, for tighter fit and better appearance. Minisets have the improved

small-cup Allenpoint that drives deeper and holds tighter.

Because sockets are uniformly true hexagon shape, the key or driver fits tight — makes starting much easier, saves a lot of time in assembly.

Diameters of these miniatures run from #0 through #3. Minicap lengths run from 1/8" through 1/2", and Miniset lengths from 1/16" through 1/4". Also standard in stainless steel. Your Industrial Distributor has them now. He'll show you why these Allens — like all Allens — hold tighter and last longer. Or write for information and samples.

Use Minicaps and Minisets wherever you need dependable fastening in very small assemblies:

TV, radio and telephone equipment • Guided missiles, rockets
• Panel meters • Electro-mechanical devices and servo-systems • Computers • Control and operating mechanisms for relays
• Cameras • Instruments

Stocked and sold by leading industrial distributors everywhere

ALLEN

MANUFACTURING COMPANY Hartford 2, Connecticut, U.S.A.



YOU CAN GET 43 STOCK SIZES 1/8" to 3"



All of these precision-machined solid steel collars are size-marked for quick identification, and fitted with the famous self-locking Unbrako Socket Set Screw for positive positioning on the shaft. Write for Bulletin 868. STANDARD PRESSED STEEL CO., Jenkintown 31, Pa.

STANDARD PRESSED STEEL CO.

HALLOWELL POWER TRANSMISSION DIVISION

ISION SPS

For More Information Circle No. 897 on Inquiry Card-Page 17

BIG NEW fancooled rotary

model

4565



GAST AIR PUMPS

deliver 45 C. F. M. - double the capacity of previous models!

AS COMPRESSOR: 45 c.f.m., to 20 p.s.i.g. continuously with 5 h.p. at 1750 f.p.m.

VACUUM PUMP: 45 c.f.m., vac. to 25 in. hg. with 3 h.p. motor, 35 c.f.m. with 2 h.p.

Write for Bulletins 557-VP Now bigger - volume utility for original equipment or plant use! Built as either Compressor or Vacuum Pump for continuous, heavy-duty service. Air-cooled by 10" diameter pitch fan. Cowl-guard directs air—eliminates water-cooling headaches.

Long-lived, efficient 5-vane rotary design positive, pulseless air delivery — needs no tank. Easy-to-mount v-belt drive. Three rows of ball bearings. Weight only 92 lbs.! Many applications.

Gast Manufacturing Corp., P.O. Box 117-X Benton Harbor, Mich.

Original Equipment Manufacturers for Over 25 Years



GAST

AIR MOTORS TO 4 H.P.

COMPRESSORS TO 30 P.S.I.

POTARY

VACUUM PUMPS TO 28 IN.

See Our Catalog in Sweet's Product Design File

For More Information Circle No. 1075 on Inquiry Card-Page 17

A complete line of Silicone rubber compounds and expanded services for the molding of precision parts is now available through the facilities of the Acushnet Process Company, New Bedford, Mass. Increased service temperatures to 500°F, and for limited periods to 600°F, are offered by five new heat resistant Silicone compounds with a Shore A Hardness of 40 through 80 that have just been released by the Achusnet laboratory. Three compounds with low shrinkage characteristics in the 50 through 70 durometer range now permit the molding of parts and the holding of close tolerances in existing tools originally designed for organic rubbers. In addition to the above compounds, Acushnet announces the availability of Dow-Corning's Silicone Resin DC-301 compound for molding of parts that require exceptional electrical and physical properties at high temperatures.

AS PRECISION-MADE AS A SWISS TIME-PIECE

Precision manufacturing calls for precision components down to the last spring lock washer. Every one of the millions of NEVERSLIP spring lock washers made on our automatic machines is precision-made of our own laboratory controlled wire. Whether you buy NEVERSLIP lock washers in bulk or our new UNI PAK® quality and size are consistently dependable. Write for FREE SAMPLES.

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Franc lock in

For More Information Circle No. 898 on Inquiry Card—Page 17

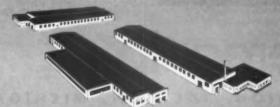
ROLL FORMED REDUCES TODAY'S PRODUCTION COSTS





Roll Formed manufactures metal shapes for all industries. We can engineer and produce your shapes and deliver them to meet your production schedules. Because of the accuracy of Roll Formed shapes your finished assemblies will cost you less. We produce simple and complex shapes

in carbon, galvanized and stainless steel; aluminum, copper, sinc and clad metals. Uniformity, high production and less scrap hold our costs down. Send your prints and quantity requirements today. Let us show you how you can beat production costs with Roll Formed!



ROLL FORMED PRODUCTS

MAIN OFFICE AND PLANT 3753 OAKWOOD AVE. . YOUNGSTOWN, OHIO

"Aeroquip Hose with **Reusable Fittings** Makes Replacement Quick and Easy"

REPORTS: Ed Reine, Whirlpool-Seeger Corp.

When replacement hose lines are needed on the four automatic resistance welders at the company's Evansville, Ind. refrigerator plant, Whirlpool-Seeger maintenance personnel save time by using Aeroquip Bulk Hose and Reusable Fittings. Only bench tools are needed to make new assemblies. Three kinds of Aeroquip Hoses meet all plant requirements:

1503 Medium Pressure Hose with Reusable Fittings for hydraulic and lube oil applications.

1509 High Pressure Hose with Reusable Fittings for hydraulic lines.

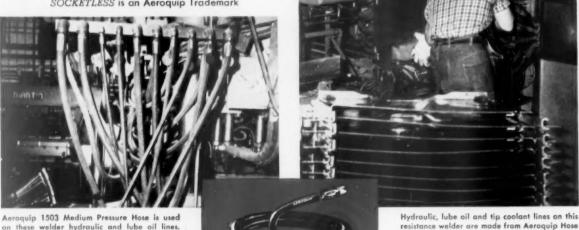
1525 Low Pressure Hose with SOCKETLESS Fittings for welding tip coolant lines.

Quick replacement is just one of the many advantages of Aeroquip Flexible Hose Lines. Learn about their dependability and durability from your Aeroquip Distributor listed in the Yellow Page Phone Book. Or write us.

SOCKETLESS is an Aeroquip Trademark

Because it is flexible, Aeroquip Hose installs

quickly and easily, withstands vibration.



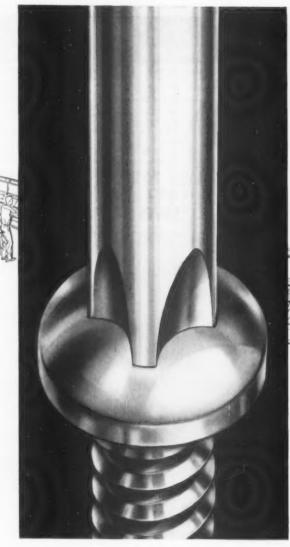


AEROQUIP CORPORATION, JACKSON,

IN CANADA: AEROQUIP (CANADA) LTD., TORONTO 10, ONTARIO

SOCKETLESS Fitting Patents: Argentina, Australia, Australia, Australia, France, Great Britain, Italy, Mexico, South Africa, Spain—Patents pending in U.S.A., Canada, and other countries, LOCAL REPRESENTATIVES IN PRINCIPAL CITIES IN U.S.A. AND ABROAD • AEROQUIP PRODUCTS ARE FULLY PROTECTED BY PATENTS IN U.S.A. AND ABROAD

and Detachable, Reusable Fittings.



They may look the same but...

AMERICAN is the name!



In most instances, fastening costs are based on 4 main factors:

- 1. Price
- 3. Quality
- 2. Service
- 4. Research

Local price fluctuations may seem beneficial in some circumstances, but no one gives you more of all four than American.

American Gives You More of All Four

In Service — where American will meet required production schedules for single cases or car load lots.

In Quality — where superiority is produced at the machine and confirmed at the inspection tables.

In Research — where American engineers put the same skill that developed the Phillips Head Fastener into the creation of new products like SCREWSTICK for industries with special problems. SCREWSTICK makes possible power driving in place of the manual handling of small tedious-to-manage screws resulting in cost savings exceeding 4 to 1.

You can use these facilities to raise production, increase quality and lower costs because no one gives you more of all four factors: price, service, quality and research than American.

Draw your own conclusions: send us your inquiry for price and delivery or your specifications for special fasteners. Write:



SCREWSTICK being loaded into air-powered driver.



AMERICAN SCREW CO., WILLIMANTIC, CONN NORRISTOWN PA . CHICAGO, ILL . DETROIT, MICH.

For More Information Circle No. 901 on Inquiry Card-Page 17

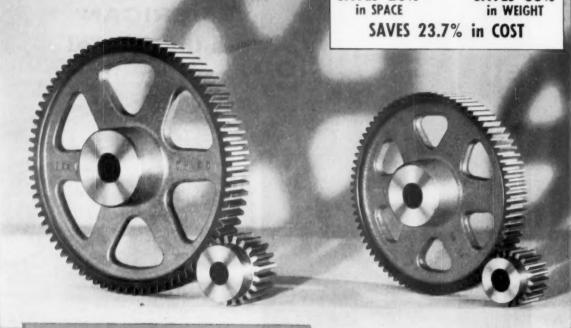
They both meet the job specifications . . . but one of these gear sets

costs you 23% less

20° Pressure angle		COMPARE SAME	14½° Pressure angle	
Pinion	Gear	RATIO	Pinion	Gear
2"	8"	Pitch Diam.	2.5"	10"
5"		Center Distance	6.25"	
1 lb. 3 oz.	9 lb. 1 or.	Weight	2 lb. 3 oz.	13 lb. 2 oz.
3.67	14.60	Price	4.72	19.20

SAVES 20% in SPACE

SAVES 33% in WEIGHT



BOSTON 20' Pressure Angle GEARS 441 STANDARD SIZES FROM STOCK!





SEE CATALOG No. 56 for complete listings

Every engineer knows the quiet-running efficiency and high strength of the 20° Pressure Angle tooth form. For most installations, the 20° P. A. Gear that meets specifications saves an average of 20% in space, weight, and cost over the comparable 141/2° P. A. Gear required.

Now, the types and sizes of 20° P. A. Gears you need to make these big savings in your assemblies are available, anywhere in industrial U.S. A. or Canada, FROM STOCK at BOSTON GEAR Distributors.

Get details. Start making the savings you've been missing. Boston Gear Works, 74 Hayward St., Quincy 71, Mass.

"OFF-THE-SHELF" - AT FACTORY PRICES CALL YOUR

DISTRIBUTOR

STANDARDIZED TRANSMISSION **PRODUCTS**

Visit BOSTON GEAR Booth No. 206 DESIGN ENGINEERING SHOW **New York Coliseum**

Preliminary plans have been completed for the Kama Instrument Corporation, Mineola, New York, manufacturers of fine wire wound components under the government NIKE program, to become a wholly-owned subsidiary of The Narda Corporation, have been announced. Narda, also located in Mineola, plans to provide a greatly expanded service to its microwave and UHF test equipment customers as a result of acquiring Kama's production facilities. The new subsidiary produces high resolution pick-off units, used in gyroscopes; rate and amount potentiometers; and balance and trimming potentiometers that are stable over a wide temperature range. The wire sizes in these devices range from .0004 to .0015 inch. All fine wire components are engineered and produced to the customer's specifications. Stuart Casper, presently vice-president in charge of engineering at Narda has been appointed general manager of the Kama Corporation. Donald R. Robertson, formerly Kama's chief engineer and more recently in charge of Narda's production of step attenuators and wave meters for the TS107 radar test set, has been appointed Kama's plant manager.

The Magnetics Division of Servomechanisms, Inc., York, has completed its move to a new 20,000 square foot plant located at 1000 West El Segundo Blvd. in Hawthorne, California. The modern plant is built with complete facilities for design, development and production of precision transformers, miniature transistor transformers, audio filters and magnetic amplifiers for use in high performance ground based and airborne instrumentation and systems.

The new Magnetics Division, manufacturing iron-core components, is an outgrowth of long-range plans of the company to produce miniature components of improved performance, reliability, and ability to operate under more stringent environ-

BG7

mental conditions.



INCREASED EFFICIENCY AT LOWER COST

Randall is a dependable sleeve bearing supplier for the OEM Industry, Advanced foundry and machining practice-coupled with a planned research programhave enabled Randall to keep abreast of new designs and developments. Quality, economy, long-life and reduced maintenance are features found in all Randall products.

PILLOW BLOCKS-complete, self-aligning units ready for installation incorporating Randall's exclusive "DEEP-WELL" Ball Assembly.

BALL ASSEMBLIES—may be purchased separately and are adaptable to a wide variety of mountings.

CORED AND SOLID BRONZE BARS -- semi-finished, available from stock.

STANDARD BRONZE BUSHINGS-precision finished to close tolerances-available from stock

SPECIAL BRONZE BUSHINGS-to blueprint specifications-produced with nominal lead time

GRAPHITED BRONZE BUSHINGS-featuring Randall's exclusive graphite mixture, available in standard and special sizes.

Bushings and bars can be supplied in any of the recognized bearing bronze alloys. Pillow Blocks may be modified for special applications and are available with a choice of lubricant.

LOOK TO RANDALL FOR YOUR SLEEVE BEARING REQUIREMENTS

Your nearby Randall distributor is listed in the yellow pages of the telephone directory under "Bearings." Call him today,





Clip this coupon to your letterhead, include your name and department and send it to Randall Graphite Bearings, Inc.

Please send me the Randall Pillow Black Catalog. Please send me the Randall Bronze Catalog.

L GRAPHITE BEARINGS, INC.

1014 S. GREENLAWN AVENUE, LIMA, OHIO

For More Information Circle No. 903 on Inquiry Card-Page 17



NOW! ICE CUBES MADE automatically!

Chicago Molded engineers solve tricky

plastics problem for Servel...because they know plastics

If your next refrigerator is a Servel Ice-Magic, you'll find it solves the problems of ice-tray handling. It *eliminates* the tray — makes tumbler-round ice "cubes" automatically.

Part of the story behind this revolutionary development is a unique plastic part. It's made of phenolic — mostly, that is. However, a small nylon bearing has been molded into the phenolic part.

This was quite a trick...combining nylon and a phenolic. One's a thermo-plastic, the other's a thermosetting plastic that requires molding heat that will normally soften a thermoplastic. To make a molding from both materials was like putting oil and water together. However, CMPC did the trick.

Chicago Molded's reputation for being able to accomplish the unusual comes from 38 years' experience in molding every type of plastic material known. Our engineers have the experience it takes to help eliminate costly frills . . . suggest better molding materials . . . even help develop whole new processes to make your products better, more saleable, lower priced. And they're backed by the industry's most complete line of testing and manufacturing facilities. That's why 60% of our business comes from firms we've served for over 15 years.

way and in a new shape.

ANOTHER EXAMPLE OF CHICAGO MOLDED DESIGN HELP: A unique phenolic part with a nylon bearing insert helps the Servel "Ice-Maker" make ice in a new

Next time you're faced with a design or production problem, be sure to call in Chicago Molded . . . early.

If you are interested in new plastic developments, let us send you a complimentary subscription to Plastic Progress.

CHICAGO MOLDED PRODUCTS CORPORATION
1025 North Kolmar Avenue, Chicage 51, Illinois

For More Information Circle No. 904 on Inquiry Card-Page 17

Electrical Industries, formerly located in Newark, has announced completion of their new plant situated in Murray Hill, New Jersey. The new plant is one of the most modern production facilities in the electronics industry. New production equipment, improved manufacturing processes and new test equipment will make it possible to expand customer service on both standard E1 terminals and custom glass-to-metal seals. Electrical Industries standard sealed terminals include single lead terminals, multiple headers, condenser end seals, threaded seals, transistor closures, miniature closures and color coded terminals. The new plant address is: Electrical Industries 691 Central Avenue, Murray Hill, New Jer-

Lester - Phoenix, Inc., Cleveland, Ohio, has announced the formal opening of an auxiliary plant in Cleveland. The trim, modern building was designed especially, for the machining operations devoted to the company's injection molding machines and die casting machines. The new plant, which is located on the site formerly occupied by the old Cleveland City Jail, is a self-contained unit. The finished, inspected components are delivered to the nearby main plant where they are assembled into the machines. It is an integral part of the company's cost-control program aimed at offsetting the continually increasing labor and material costs.

The Dumore Company, Racine, Wisconsin, manufacturers of precision electrical tools and motors, has announced the formation of a new division, known as the Nilos Ring Division, which will distribute nilos rings manufactured by Ziller and Company, Dusseldorf, Germany. The nilos ring is a patented, metallic means of protecting bearings from foreign material and retaining lubricants. Its low cost, compactness and ease of application permit its use with little or no modification of design.



These are the basic elements necessary to design and produce a precision built spring. To supply the above elements takes skill, experience and imagination . . . ingredients that Accurate Spring provides every one of their customers every day.

Accurate makes millions of springs a month—precision springs held to close tolerances by rigid quality control and inspection. Production schedules for large quantities are planned well in advance. Customers are assured of deliveries scheduled to their needs.

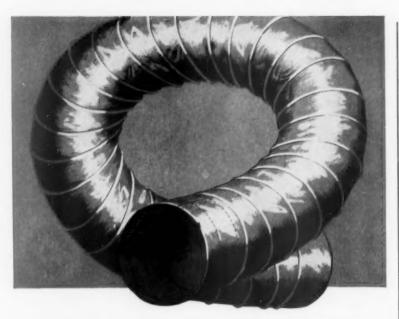
Proper packaging is necessary too, for ease of handling and speeded production. Untangling springs can be irksome and expensive.

Accurate has a blueprint for successful spring design and quantity production. When you plan springs, plan with Accurate Spring Mfg. Co.



ACCURATE SPRING MFG. CO., 3825 W. Lake St., Chicago 24, III.

For More Information Circle No. 905 on Inquiry Card-Page 17



facts about Spiratube®

that will help you meet your plant's ducting requirements

What is Spiratube?

A flexible, lightweight duct made of continuous helical coils of spring steel reinforced with overlapping plies of tough, multicoated fabric.

What are its applications?

Spiratube is used for the removal of air, gases, liquids and many solids at low pressure. Its installation can be either portable, permanent or temporary.

How flexible is Spiratube?

It will take tight turns at any point up to 180° without buckling. No elbows or fittings are required.

How much abuse can it take?

Plenty. The fabric in Spiratube is extremely rugged. Flex tests run to 280,000 times without apparent wear.

Are there different types of Spiratube?

Yes. Five different types . . . available in a variety of covers and in sizes from $3^{\prime\prime}$ to $30^{\prime\prime}$ I.D.

What about installation?

Sections of Spiratube can be linked together or detached in a matter of seconds without the use of tools. If machine changes are made, Spiratube can be assembled and disassembled and reused over and over again.

How can I make sure that Spiratube is right for my plant? Write us, outlining your requirements. Our engineers will be glad to work with you. Write Dept. 195.

Flexible Tubing

GUILFORD, CONNECTICUT . LOS ANGELES 64, CALIFORNIA

For More Information Circle No. 906 on Inquiry Card-Page 17

Engineered Magnetics division of Gulton Industries, Inc., Metuchen, N.J., has announced expansion plans for its Culver City, Calif., plant that will triple production capacity when completed early in 1957. The division manufactures magnetically regulated power supplies for airborne, computer and other applications.

In making the announcement, the company also stated that Bert McComb has joined the division as chief engineer. Formerly associated with the Ramo-Wooldridge Corporation, Mr. McComb is a recognized authority and early pioneer in the field of magnetic amplifiers and related equipment.

The Fluor Corp., Ltd., Los Angeles, Calif., has been awarded a three phase contract by the Atomic Energy Commission, aimed at improving facilities for the handling of radio-active wastes at the National Reactor Testing station near Arco, Idaho. Total cost of the contract will be about \$3,000,000.

Kenco Pump Division, a division of the American Crucible Products Co., Lorain, Ohio, will soon be completely situated in a new plant. The building is located at 1502 W. 13th St., Lorain, Ohio, a block away from the former plant. Construction began in November, 1956, and the plant was largely completed by late February, 1957. The plant consists of approximately 12,000 square feet of floor space, and is headquarters for the following Kenco Pump Division facilities: design, administration, manufacturing, engineering, service, warehousing, shipping and sales.

FOR FURTHER INFORMATION
ON PRODUCTS IN THIS ISSUE
PLEASE USE
READER-SERVICE CARD
ON PAGE 17



Two at a time . . .

Wastebaskets molded for higher production . . . lower cost

A major manufacturer of metal housewares decided to broaden his line by adding plastic wastebaskets. His first step was to call in a Nosco sales-engineer . . . logical, because Nosco men are qualified plastic-parts technicians who know exactly how to put Nosco engineering and production facilities to work. The Nosco plant thus becomes the customer's own plastic molding department!

For the 8-quart basket, Nosco engineered the deepest two-cavity mold ever built. This hotrunner mold, which virtually eliminates all scrap, weighs more than a ton and is run in one of Nosco's large pre-plasticized presses.

The two larger size wastebaskets, pictured above, are now molded one at a time, but when production warrants, these parts can also be molded in two-cavity dies.

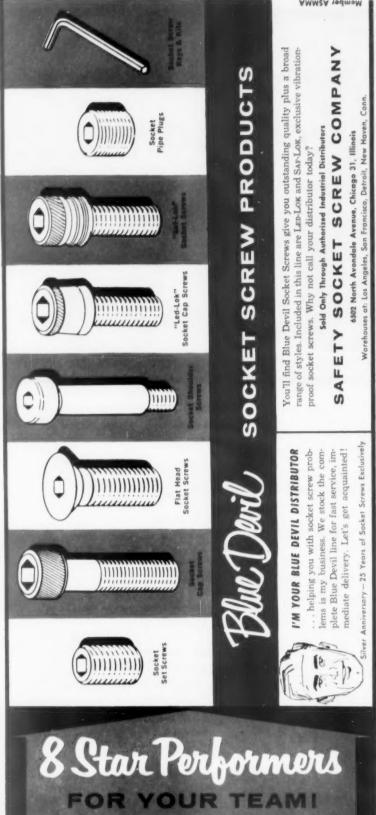
Nosco "Can Do" enabled this manufacturer to successfully produce deep-drawn parts at lower cost. Why not let one of our sales engineers put Nosco "Can Do" to work in designing your next plastic part? Please write.

NOSCO plastics, inc. · erie 1, pa.

World's largest injection molding plant



For other case histories—and for a glimpse of the Nosco plant and facilities, send for the free 12-page brochure, "How the Nosco Plant Works to Produce Your Needs in Practical Plastics."



For More Information Circle No. 908 on Inquiry Card-Page 17

Construction has begun on a new plant between Mount Pleasant and Scottdale, Westmoreland County, Pennsylvania, for the Pittsburg Screw and Bolt Corp., Pittsburgh. The new plant will manufacture and stock a complete line of bolts, nuts, screws, rivets and various types of other industrial fasteners. Located on 75 acres, it will have approximately 600,000 square feet, of which 300,000 will be used for manufacturing and the other half for packing, shopping, and warehousing. The two-story office building and complete cafeteria facilities will require 43,000 square feet. All facilities have been planned for possible future expansion.

The Nylok Corporation, Paramus, N. J. has licensed Lamson & Sessions Co., Cleveland, Ohio to produce its patented line of self-locking screws and bolts. The process involves inserting a nylon plug into a hole drilled in the threaded area of the fastener. And Lamson & Sessions, one of the nation's largest suppliers of nuts, screws and bolts, has already made arrangements for special Nylok-designed machinery for the operation. Initially, the company will start production of Nylok fasteners in its main Cleveland plant.

Timken Roller Bearing Co., Canton, Ohio, has announced that two buildings were completed recently at the company's Gambrinus steel mill for the purpose of providing employees with new locker room facilities. A two story building erected at the No. 3 tube mill with total floor space of 3,050 square feet will house tube mill offices and the tool room on its ground floor. The locker room occupies the second floor. Total cost of the building is approximately \$40,000. The other is a one story steel fabricated building located at the tunnel furnace building. Cost of the building is about \$7,000.



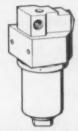
corrosive and high temperature fluids



process fluids



air



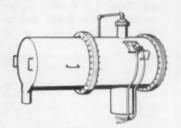
hydraulic fluids



coolants



bulk liquids



water separation



lubricants



fuels

There are over 2,000 filter types available right now from Purolator. Before you consider special, custom made filters, let Purolator know your filtration problem. Write Purolator Products, Inc., 970 New Brunswick Ave., Rahway, N. J.

There's a Purolator filter for every known fluid

Filtration For Every Known Fluid

LATOR

Rahway, New Jersey and Toronto, Ontario, Canada

For More Information Circle No. 909 on Inquiry Card-Page 17

150,000,000 Standard Fastenings... Bolts, Nuts, Screws, Rivets, Washers ready for IMMEDIATE DELIVERY

Be Specific... Don't Compromise... get the exact corrosion-resistant fastenings you need-right away—from your nearby Harper Distributor. He stocks thousands and thousands of them to give you quick service. He's an expert in fastenings and will give your order specialized attention. Why shop? Why wait? He has what you need ... on hand BEFORE you order. They're as near as your phone. Call your local Harper Distributor today for immediate delivery

THE H. M. HARPER COMPANY





Irrefutable proof of Harper's greater metals' strength shown by laboratory test!



An important point in buying fastenings is strength. Independent laboratory tests*, utilizing Stainless Steel Machine Bolts by Harper and three other leading producers, prove Harper superiority in Tensile, Shear, and Yield Strength. The chart at left shows the actual results of these tests. For complete information on these important tests, request Form No. 126.

*By R. W. Hunt Laboratories



Dravo Corporation, Pittsburgh, will furnish a packaged Unilube mill lubrication system to the Lowey-Hydropress Division of Baldwin-Lima Hamilton Corporation for installation on a flying shear in the plant of Keystone Steel and Wire Company, Peoria, Illinois. The Dravo-DeLaval mill lubrication unit will provide a metered flow of 15 gallons of 1250 SSU oil per minute at 100 degrees (F) to bearings and gears of the shear drive unit.



Allen Manufacturing Co., Hartford, Conn. has started construction of a new plant and main office in Bloomfield. The company expects to move its equipment and more than 700 employees into the new plant about August, 1958. The plant will be located on Dudley Town Road in the Blue Hills Extension section of Bloomfield, Conn. The new structure will be of modern, onestory construction, covering in excess of 250,000 square feet. An additional 20,000 square feet will be provided for a separate twostory office wing, which will connect with the factory by a glassenclosed corridor. The factory has been laid out to provide the most efficient work-flow possible from materials to finished goods ready for shipment.

Plans for the construction of a new million-dollar plant in eastern Nassau County have been announced by Servomechanisms, Inc., New York. The 55,000 square foot plant will house engineering and production of the Subsystems Group of the company. Another plant for this group in Westbury, N. Y., will remain in operation after the new plant opens sometime late next year.

For More Information Circle No. 910 on Inquiry Card—Page 17

News of Your Suppliers

Andrew S. March has been promoted to western division sales manager of Coated Abrasives Division, Armour and Company, Alliance, Ohio. His head-quarters will be in Chicago.

Norman R. Klivans has been promoted to assistant general sales manager of Brush Electronics Company, division of Clevite Corporation, Cleveland. Mr. Klivans will be in charge of all line activities of the company's sales division.

W. J. Rutherford has been promoted to aviation sales manager by General Logistics, Pasadena, Calif., a subsidiary of Aeroquip Corp., Jackson, Mich. Mr. Rutherford was formerly chief sales engineer for the eleven western states. He began his career with



W. J. Rutherford

the Douglas Aircraft Co., Inc., in the engineering department. He was later head of the flight test group for another aircraft firm and began his sales career in 1936 as the sales engineer for another aircraft concern.

Howard H. Wilder has been made manager of engineering sales for Vanadium Corp. of America, New York. Mr. Wilder will have new headquarters in the corporation's Chicago offices.

For More Information Circle No. 911 on Inquiry Card—Page 17→



Put your SPECIAL problem to the Harper FLO-FORM team

This small but tricky eyebolt (reproduced here in giant size) was redesigned and produced by Harper at a 50% saving. The Harper Flo-Form Process employs highly special techniques to produce parts of economical design, with greater strength and durability, and without scrap loss. Call on the Harper Flo-Form engineering team of design, metallurgical, and tooling specialists to help you save dimes to dollars on parts which you find costly to manufacture. Use their more than 33 years of know-how. See what you, too, can save on corrosion-resistant fastenings and special parts. Send your problem today to The H. M. Harper Company and ask for the Flo-Form catalog.

Meet Harper Application Engineer, WILLIAM O'DELL

Atlanta and the surrounding area get Harper Application Engineering Service from Mr. O'Dell. Bill works from the Harper Branch in Atlanta with fastening users and with the Harper Flo-Form Engineering Team to provide parts at the lowest possible cost.



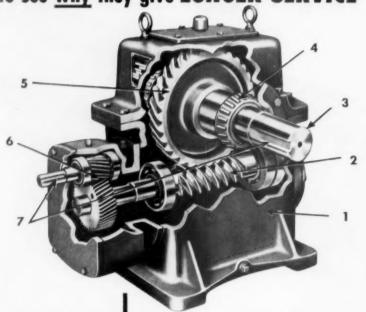
The Marper infinity symbol, as shown above, and the name FLO-FORM are registered trade marks of The H. M. Harper Company.



8222 LEHIGH AVE., MORTON GROVE, ILLINOIS

Look Inside a Foote Bros.

ENCLOSED WORM GEAR DRIVE to see why they give LONGER SERVICE



1 EXTRA STRONG CAST HOUSING

Provides rigid mounting and alignment of caps and bearings. Made of high quality cast iron.

2 PRECISION ALLOY STEEL WORM

Integral with oversize shaft. Carefully matched to worm gear for quiet, trouble-free service.

3 OVERSIZE OUTPUT SHAFT

4 HEAVY DUTY, EXTRA LARGE BEARINGS

Oversize bearings used throughout unit. Worm bearings are combination single row radial and angular contact ball bearings. Input shaft bearings are single row radial type.

5 WORM GEAR

Precision generated from uniform density, high hardness virgin bronze alloy casting. High load carrying capacity.

6 HEAT TREATED HELICAL GEARS

Shaved for full tooth contact. Pinion integral with input shaft. Gear locked in position on worm shaft extension.

7 Just one of 10 different types, in a wide range of sizes, ratios and shaft arrangements.

this trademark stands for the finest industrial gearing made

T. M. REG. U. S. PAT OFF



One look at the oversize bearings, larger shafts, precision made gearing and the sturdy housing of a Foote Bros. Hygrade Worm Gear Drive tells you that <u>this</u> is a workhorse unit that will stand up and deliver under the toughest conditions.

Notice the carefully balanced design . . . greater mass where it's needed . . . the elimination of weight when it contributes nothing to efficiency . . . strength and toughness at the right places . . . the correct gear alloys . . . the compact design, and above all, the simplicity and ruggedness of this unit.

When you know the *inside* story of Foote Bros. Hygrade Worm Gear Drives, you can understand why they have built a reputation for quality, dependability, and performance that is unmatched by others.

Call in a Foote Bros. Field Engineer. Take advantage of our long experience in this business. Let us help you select or specify the most economical drive for your application.

Write for Engineering Manual HGB, It contains complete information on Hygrade Enclosed Worm Gear Drives.

FOOTE BROS

Better Power Transmission Through Better Gears

FOOTE BROS. GEAR AND MACHINE CORPORATION
4577 South Western Boulevard Chicago 9, Illinois

For More Information Circle No. 912 on Inquiry Card-Page 17

Appointment of Ray A. Strother as regional engineering representative in the Los Angeles industrial area and Arizona has been announced by Huck Manufacturing Co., Detroit, Mich. He will have offices at 1237 Arbor Vitae, Inglewood, Calif. Mr. Strother will be responsible for providing engineering assistance to west coast users of featherweight aircraft commercial grade fasteners, blind rivets, stump type lockbolts and other special high quality fasteners.

The H. M. Harper Co., Morton Grove, Ill., has announced the appointment of William O'Dell as



William O'Dell

district manager of the southeastern section. Branch offices are at 3131 Maple Drive, N. E., Atlanta, Georgia.

Six new appointments in three field sales organizations of Mason Neilan, Division of Worthington Corp., Norwood, Mass. have been announced. Robert O. Smith moved into the position of New York district manager, with responsibility for sales of complete Masoneilan product line. Allan Gilchrist, formerly of Peabody Engineering Co., has joined the New York office in a sales engineer capacity. Additions to the Chicago office are: Robert Nickerson, transferred from headquarters in Norwood, and John Mattes, Jr., who has newly joined the company as a sales engineer. On the west coast, the company has added Harry Mattes and David Willardson to their Los Angeles sales engineer staff.

Do you require large castings of high quality?

Send for this new booklet on Chambersburg's modern foundry and the cement-bonded sand castings produced there. As a result of the accuracy and excellent quality of these castings, marked reductions in finish machining is often possible.



CHAMBERSBURG ENGINEERING COMPANY

"THE HAMMER BUILDERS"

561 Derbyshire St.

Chambersburg, Pa.

For More Information Circle No. 913 on Inquiry Card-Page 17



AND REFERENCE LIST ON



WHEELS TIRES-HUBS BEARINGS

Every design engineer and procurement official needs this comprehensive data book for easy reference and guidance. A "must" for all producers of items that roll on juvenile, light or heavy duty industrial wheels.



GET YOUR COPY NOW

To obtain your FREE copy, just write us on your letterhead. Supplementary data sheets will be sent you as they are released.

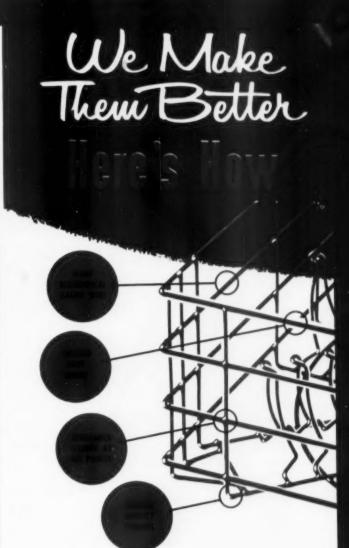
ALLIED WHEEL PRODUCTS, Inc.

Dept. P . 27 BROADWAY . TOLEDO 4, OHIO

For More Information Circle No. 914 on Inquiry Card—Page 17

For More Information Circle No. 915

on Inquiry Card—Page 17→



Attention to many small but important details add up to highest quality in the final product. Our policy here at Peerless dictates that quality must never be sacrificed to lower the price. Instead, lower costs are often attained through design modifications in our pilot models by simplified fabrication procedures which do not sacrifice quality. Here is where knowledge and experience combine to form wire products of the highest standards.

You undoubtedly have cost problems in your formed wire product components. We specialize in working to reduce or eliminate cost problems. We've been doing it since 1910.

Our method is simple. Send us your drawings for a quotation by return mail.



WIRE PRODUCTS

PEERLESS WIRE GOODS COMPANY, INC. 2701 FERRY STREET . LAFAYETTE, INDIANA

Perless Products Please

How Alcoa Aluminum Fasteners make good windows even better



You can meet the highest standards of quality and the specifications of the AWMA (Aluminum Window Manufacturers Association) for prime windows of aluminum when you assemble with Alcoa® Aluminum Fasteners. Perfect color match and protection against both galvanic and atmospheric corrosion make for lasting good looks... consumer satisfaction. Complete stocks carried by your local Alcoa distributor fill every requirement. He is listed in the Yellow Pages of your telephone directory.



For More Information Circle No. 916 on Inquiry Card-Page 17

Frank W. Krohn has been appointed a field engineer by Norton Company, Worcester, Mass. Mr. Krohn has been assigned to its Detroit district office.

Dresser Manufacturing Division, Bradford, Pa., has appointed Jack Bradigan sales representative in sections of New York, Pennsylvania and Ohio. Mr. Bradigan will make his headquarters in Bradford.

The appointment of Thomas R. Catsldo as sales manager of the Mechatrol Division has been announced by Servomechanisms, Inc., New York.

Howard A. Reid has been made executive assistant to the vice president in charge of sales for Walworth Company, New York.

Tom W. Smith has been appointed general field sales manager of Champion Screw Company, Chicago.

NEWS

Die Casters Announce New Standards on Commercial Practice, Trade Customs

Buyers of die castings can now obtain, for the first time, comprehensive standards covering the principal provisions specific to die casting purchasing contracts. Just released by the American Die Casting Institute, the new standards are designated as the "C" Series. They present the prevailing and customary arrangements normally found in the proposal and acknowledgment forms used by the die casting industry.

The "C" Series of product standards consists of eight pages, plus an introductory page, covering the following subjects: Commercial Terms of Orders; Shipping Tolerances, Deliveries and Packing; Die Casting Dies and

(Please turn to page 394)



For More Information Circle No. 917 on Inquiry Card—Page 17 PURCHASING



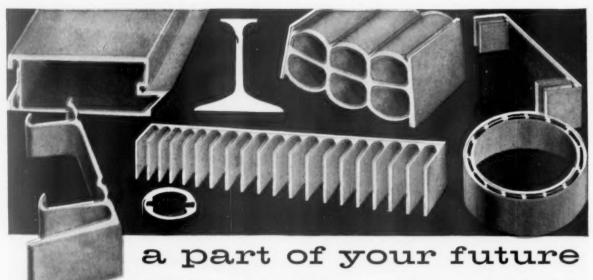
Where cost reduction is a factor . . . consider bushings with bearing performance

Our formed bushings and thrust washers are widely used for automatic transmission and other applications. They can be solid bronze or steel lined on either or both surfaces. Washers can be "lined" on both faces. Many special features can be incorporated-grooves, holes, nibs, ball indenting; straight, special or locking seams. We provide complete engineering service. Address:



FEDER AL - MOGUL DIVISION FEDERAL-MOGUL-BOWER BEARINGS, INC., 11077 SHOEMAKER, DETROIT 13, MICHIGAN

RESEARCH . DESIGN . METALLURGY . PRECISION MANUFACTURING



WERNER Aluminum EXTRUSIONS perform critical functions, achieve the high standards required for maximum product and production efficiency. Leading manufacturers of appliances, trailers, curtain walls, aircraft, etc. depend on WERNER EXTRUSIONS for precision tolerances, consistent quality control and delivery to meet their production schedule. If your present or future product requirements include extruded aluminum parts—contact WERNER Aluminum. Sales representatives located in principal cities.



For More Information Circle No. 919 on Inquiry Card-Page 17

from expert hands to you...

DROP FORGINGS Expertly designed and made for maximum strength and toughness. Accurate, flash-free surfaces — smooth, bright, flawless finish. Forged in a wide range of metals and alloys in weights from $\frac{1}{4}$ to 15 lbs.



COMPLETE MACHINING FACILITIES AVAILABLE

RITCO

Write Ritco into your plans . . . send blueprints and specifications for prompt estimates at no obligation.

UPSET FORGINGS Accurately produced high strength parts in a wide variety of metals and alloys. Ritco "Bright Finish" Upsets are free of flash, voids and blow holes . . . assure excellent machining qualities.

SPECIAL FASTENERS Ritco maintains complete facilities for making Special Fasteners in any metal or alloy . . . ferrous or non-ferrous . . . ground or unground. Bolts to 2'' diameter; studs to $2\frac{1}{2}''$ diameter. Cut or precision rolled threads.

RHODE ISLAND TOOL COMPANY

150 WEST RIVER STREET . PROVIDENCE 1, R. I.



Exclusive New England representative for Cleveland Cap Screw Company

For More Information Circle No. 920 on Inquiry Card-Page 17



In a full size range and two types: low-carbon bright and high-carbon heat-treated; Coarse or fine threads



BETHLEHEM STEEL



Production Tooling; Price Escalation Provisions; Inserts and Gauges; Patents; Warranty; and Limitations on Inspection. This information will be invaluable to anyone concerned with the design and procurement of die castings.

The product standards for die castings program was initiated in 1955 by the American Die Casting Institute. The first standards were the engineering (E) series consisting of 14 pages covering tolerances, draft requirements, cored holes, ejector pin marks, flash removal and other details of design requirements.

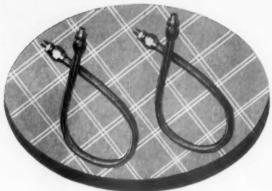
More recently a metallurgical (M) series was released to cover information on the physical properties and constants of die castings. This 9-page series of product standards includes compositions, properties and characteristics of aluminum, brass and magnesium die castings, together with a cross reference chart. Information on zinc die castings will soon be released in this series.

The new C series of product standards is based on the commercial arrangements which have evolved from the past half-century of industry-wide production experience and have generally been accepted as good business practice. A full understanding of these contractural provisions can aid purchasers in obtaining die cast components at the most economical level.

With the introduction of the commercial practices (C) series the product standards for die castings released to date total 32 pages.

FOR
MORE INFORMATION
ON PRODUCTS
IN THIS ISSUE
PLEASE USE
INQUIRY CARD—PAGE 17





NO? Neither could we from a photograph. And you probably couldn't tell by comparing the original prices, either.

But you would soon know if one failed in half the time of the other and interrupted a continuous process. Under these conditions the difference in cost could easily be \$250 or even much more.

To keep your total costs low, select Flexon Metal Hose and Connectors. These products are backed by 55 years' manufacturing experience and continuous research and testing to assure you of the quality standards that mean greater economy in the long run.

FLEXON®
QUALITY
proved in service and

backed by over 55 years

manufacturing

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CHICAGO METAL HOSE
DIVISION

orporation

1316 S. THIRD AVENUE, MAYWOOD, ILLINOIS

FORMERLY CHICAGO METAL HOSE CORPORATION

Manufacturers of flexible metal hose and conduit, expansion joints, metallic bellows and assemblies of these components. In Canada: Flexenics Corporation of Canada, Ltd., Brampton, Ontario

For More Information Circle No. 922 on Inquiry Card-Page 17



1. WESTERN offers proved performance

WESTERN is the chosen source of many leading manufacturers in critical industries. For instance, leading makers of road building equipment whose products must really take a beating, rely on WESTERN fasteners for rugged strength that stands up to the roughest treatment.

WESTERN AUTOMATIC

Write today for free catalog and prices

Machine Screw Company

division of Standard Screw Company 378 Woodland Ave., Elyria, Ohio

WESTERN offers product quality

Product quality at WESTERN starts with careful selection of approved steels, and is guarded through production by many separate inspection operations. WESTERN's carbon restoration process assures uniform strength and hardness throughout the entire thread structure.

WESTERN offers a complete line

We manufacture and maintain large stocks of all commonly used standard industrial fasteners including cap screws, socket screws, set screws, pipe plugs, dowel pins, nuts and studs. Whatever the size of your order we can ship fast from stock.

WESTERN offers unusual facilities for design and development

Our experience with special precision-machined products has given WESTERN unexcelled experience in design and development work. This experience, applied to our standard products, assures you the efficiency and economy of the latest production methods.

PRECISION SCREW PRODUCTS, PARTS AND ASSEMBLIES SINCE 1873

For More Information Circle No. 923 on Inquiry Card-Page 17

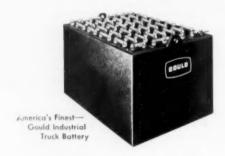
MAY, 1957

395



Pheasant hunting in Tacoma, Washington, where many champion field dogs are raised.

Set Your Sights on Longer Battery Life:



Here's a tip that may help you.

You can reduce battery costs, save your company money and be better able to judge the comparative value of each make of battery, if you simply keep good battery maintenance records. You will extend battery life by consulting these records frequently, thereby assuring the best possible operating procedures.

Why not talk this idea over with your local Gould representative . . . he will give you easy-to-use maintenance record charts. Gould-National Batteries, Inc., Trenton 7, N. J.

Aways Use Gould National Automobile & Truck Batteries

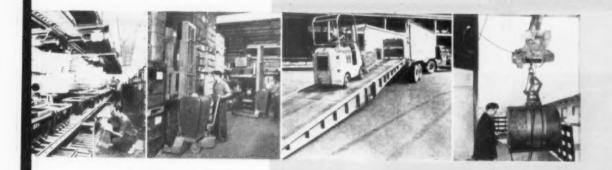
More Power to you from

gould

©1957 Gould-National Batteries, Inc.

For More Information Circle No. 924 on Inquiry Card-Page 17

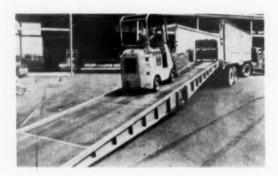
PURCHASING



Case Histories
of
Value Analysis
in

Materials Handling





Portable Ramp Cuts Unloading Time 80%

A vexing castings unloading problem has been solved for Warren Webster Co., Camden, N.J., by the use of a portable Magcoa Magnesium Yard Ramp. Incoming trailers are spotted immediately adjacent to the ground level scale and storage area. The light-weight yard ramp is moved into position by one-man (without power equipment) and a lift truck carries pallets of castings from the trailer directly to the scale. Previously the castings were moved from trailer to dock, down an elevator to ground level and then through 1500 ft of aisles. Unloading time has been reduced 80%.

CIRCLE NO. 341 ON INQUIRY CARD-PAGE 17



Conveyors, Tote Boxes Increase Productivity 50%

Filling orders from among 20,000 drug items isn't easy. But when F. Dohmen Co., acquired a new warehouse, it set up highly efficient materials handling system which has reduced order filling time 50%. The new system uses conveyors and Kennett fibre tote boxes. The first clerk to receive the order picks out items in his section and puts them in a small tray on top of the tote box. The next clerk checks the items, puts them in a larger tote box, and then places items from his section into the top tray. This procedure continues until the order is filled. The conveyor is used to link all departments in the plant.

CIRCLE NO. 342 ON INQUIRY CARD-PAGE 17



Loading Costs Drop 87.5% Time Saving Made with Hand Truck

There was no loading dock at Steel Slides, Inc., Yonkers, N.Y. and so skid loads of 500-lb cartons had to be raised onto an outgoing truck bed with a fork truck. Previously one man operated the fork truck while two other men in the truck wrestled the 500-lb cartons into place, using a hoist. It took half a day to load out an average shipment of 15.000 lb. By using a Yale Zephyr hand truck instead of the hoist, two men can do the job in half an hour. The fork truck lifts two of the 500 lb cartons onto the truck while the man inside with the Zephyr positions the load.

CIRCLE NO. 343 ON INQUIRY CARD-PAGE 17

Vacuum Hose Handling of Sugar Cuts Costs up to 30¢ cwt

A well-known food processor devised a pneumatic system to blow a year's supply of sugar into the plant from special trucks. Although the system reduced handling costs, the flexible steel tube used was short-lived and hard to handle. A tough, easily handled vacuum hose was developed for the application by Goodyear Tire & Rubber Co. It resulted in savings ranging from 17¢ to 30¢ per hundred pounds in sugar handling costs.

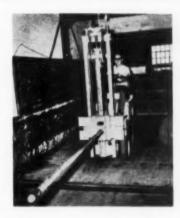
CIRCLE NO 344 ON INQUIRY CARD-PAGE 17



Two Men Instead of Six Handle Carpeting

Use of a ram attachment on a fork truck to move rolled carpeting from delivery trucks to storage racks reduced from six to two the number of men needed for this operation at the Los Angeles warehouse of Berven Carpets Corp. Even in cutting, manual holding of the carpet rolls has almost been completely eliminated. Held a foot or two off the floor, the ram acts as a finger around which the carpet is rolled and unrolled. Berven purchased the ram attachment from Robert H. Braun Co., a Clark Equipment Co., distributor.

CIRCLE NO. 345 ON INQUIRY CARD-PAGE 17



Improved Handling Technique Boosts Production 700%

By replacing a batch-type handling system with a Moyno progressing cavity pump, a major eastern candy manufacturer has increased production in one of its departments 700%. The material being handled is 190°F. caramel containing whole raisins. Viscosities of the material range from 70,000 to 135,000 C.P. Powered by a 10 hp motor, the Moyno pump delivers 30 gallons per minute at 350 rpm through 40 ft of discharge pipe.

CIRCLE NO. 346 ON INQUIRY CARD-PAGE 17







Bearing Maker Saves \$15,000 on Tote Box Inventory

A leading bearing manufacturer has saved \$15,000 through installation of a tote box system for finished stock inventory. The molded fibre tote boxes are light in weight, waterproof, oil and grease resistant. Tote boxes used by this company previously cost more than \$3 each. The new fibre boxes, supplied by Fibre Forming Div., Arvey Corp., cost only 69¢ a piece. They are available in a number of standard sizes and can be molded in custom shapes to meet individual requirements.

CIRCLE NO. 347 ON INQUIRY CARD-PAGE 17



Special Trays Cut Handling Costs 25%

Fenn Mfg. Co., manufacturer of metal forming equipment, cut its handling costs 25% by using specially designed fabricated trays made of Inconel-nickel alloy in place of cast trays made of other heat resistance alloys. The baskets used by Fenn have to withstand temperatures ranging from 120°F. below zero to 1825°F. Because of this severe treatment, Wiretex Mfg. suggested the use of Inconel. The baskets designed by Wiretex have been in use for 3 years with only minor repairs and Fenn estimates its material handling costs have been cut 25%.

CIRCLE NO. 348 ON INQUIRY CARD-PAGE 17



Conveyor Cuts Paint Costs 50%, Doubles Production

By installing a flexible 580 ft overhead conveying system which combines vertical down curves with horizontal curves. Orendorf Mfg. Co., Los Angeles, has decreased its spray paint costs 50%. Previously parts had to be sprayed on tables. Now, after grinding, parts are placed on the conveyor line and carried through the various operations. Handling has been cut to a minimum and about double the number of parts can now be worked daily.

CIRCLE NO. 349 ON INQUIRY CARD-PAGE 17

MATERIALS-HANDLING NEWS

* NEW AND UNUSUAL APPLICATIONS OF BASSICK CASTERS THAT MIGHT BE ADAPTED TO YOUR HANDLING PROBLEMS *



Position locks secure castered equipment

Portable ladders (this one is used in a large aircraft plant), work stands, scales, scaffolds and other equipment often need to be held stationary. Bassick truck locks—easy to set or disengage with foot—provide the answer. In most cases, two locks should be used and located at opposite corners of the truck as near as possible to the caster wheel.

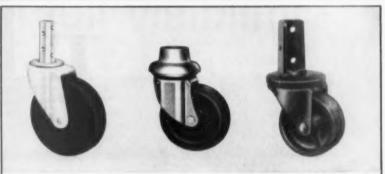
The regular position lock (above) is furnished with either flat base for regular floors or with grooved base for use with Bassick grooved wheel casters.



The new retractable position lock rides 31/4" off the floor. Allows trucks equipped with lock to clear ground obstacles.

Your distributor can help

Your local Bassick distributor has many standard casters, wheels and accessories in stock. He keeps needed units flowing from his stockroom into your plant.



Angle stem casters for direct application to angle iron legs. Stem is designed so that separate right and left hand types are not needed.

Pipe secket casters can be supplied with female threads for practically any equipment with pipe legs. All standard types of wheel available.

Angle plate caster has a special bracket plate (specify right or left hand plate) to be used with equipment having angle legs.

Caster accessories solve special in-plant problems



Wheels for special jobs

Here, for example, are acid-resistant "Canaphin" wheels on Bassick casters used in a large chemical plant. The portable still they're carrying is used in processing fine organic chemicals. Bassick casters can be supplied with a variety of other wheels—soft, hard, or having special qualities that fit them for specific jobs.



Your local Bassick distributor can show you a variety of different caster attachment styles. Or, if your problem is a special one, he can call in a Bassick field engineer to make recommendations.

Wheel brake and swivel lock

This side wing brake (below left) is available on 5" and 6" Bassick "77" or "H99" series casters; can be specially fitted for other sizes. It's engaged or released by turning the wing nut.

The plunger swivel lock (below right) positively locks caster swivelling action. Standard on Milspec casters, it's also available on special order on many other Bassick casters.







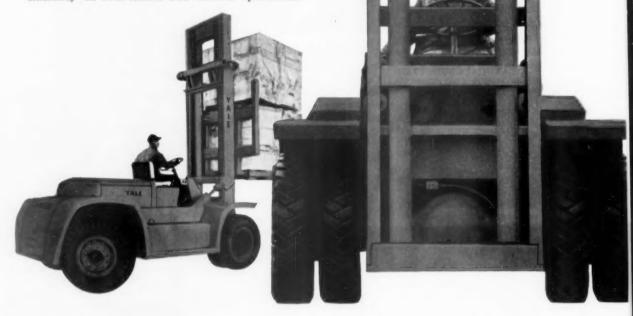
To meet the need of expanding industries for better materials handling methods, look to Yale for advances in research, engineering, manufacturing, sales and service—as

Now...first and

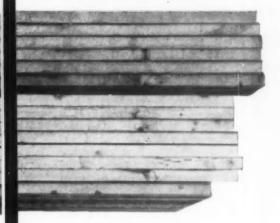


Easily Handles 15,000 to 20,000 lb. Loads

New Yale High-Capacity Gas Trucks handle extraheavy loads with maximum speed, safety and efficiency—in both indoor and outdoor operations.



only high-capacity gas truck with <u>full</u> visibility



TOP PERFORMANCE UNDER TOUGHEST CONDITIONS

Here are just a few of the premium engineering features—all included as standard—that give new Yale Gas Trucks a big edge in stamina and safety under all conditions:

- I-beam side members in frame for extra strength.
- Channels mounted on ball-bearing rollers to reduce friction and wear.
- Ball-mounted, self-aligning hoisting cylinders.
- Gear shift lever, plus hoist, tilt and attachment lever at right side of driver. Directional control lever conveniently located on steering column.
- Power steer with two balanced hydraulic cylinders, one to each rear wheel, to reduce stress on bearing points and linkage.
- Your choice of Yale Fluid Coupling or standard transmission.

YALE

WIDE-ANGLE VISION

300% MORE VISIBILITY THAN ANY OTHER TRUCK OF ITS TYPE! Not just straight-ahead vision—but "corner of the eyes" vision, too—fully functional visibility with the big, open look of new Yale High-Capacity Gas Trucks. Operator sits high and in center. Upright channels are wide-spaced, nested to reduce frontal obstruction. Right next to them—the hoisting cylinders, one right, one left. Chains that raise carriage are in front of cylinders—out of the arc of vision.

Carriage has one top bar, one bottom bar—good visibility between them at all levels of fork lift. Channel cross members are at channel ends—none between. When an attachment is used, hydraulic hoses are located in front and behind cylinders—not in the line of sight. Whether looking forward or to the rear, the operator sees more. Result: these new Yale trucks with "Wide-Angle Vision" promote safer, faster, more efficient handling of 15,000 to 20,000 lb. loads.

GREATER STABILITY. Lifting, lowering, traveling—these Yale trucks keep capacity loads in precision balance! Minimum weaving with full loads, because the trucks are built low—low center of gravity, with high underclearance. Extremely rugged design. Broad lifting base afforded by two ball-mounted lift cylinders. Wide channel-roller spacing at all points of lift, plus side-thrust rollers on channels and carriage, further increase stability factor. Large-size, high-flotation tires give good traction under severest terrain conditions.

FAST CYCLE OPERATION. New Yale High-Capacity Gas Trucks have lifting speeds up to 60 feet per minute; fast, safe lowering; travel speeds up to 20 miles per hour; easy maneuverability.

Designed for complete selection of attachments-engineered for a minimum loss distance.

YALE*

INDUSTRIAL LIFT TRUCKS AND HOISTS

YALE & TOWNE

The Yale & Towne Mfg. Co., Materials Handling Div. Manufacturing Plants in Philadelphia, Pa., and San Leandro, California

The YALE STOWNE Manufacturing Co., Dept. A-255 Roosevelt Blvd., Philadelphia 15, Pa. Please send the new Yale High-Capacity Gas Truck

Name Pitle Company

Company
Address
City Zone State

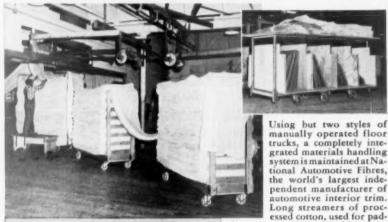
In Canada: write The Yale & Towne Manufacturing Co., St. Catharines, Ontario, Canada

Gasoline, Electric & LP-Gas Industrial Lift Trucks · Worksavers · Warehousers · Hand Trucks · Hand and Electric Holsts

For More Information Circle No. 926 on Inquiry Card-Page 17

aultless

HOW 2 HANDLING OPERATIONS OF BULKY PRODUCTS WERE ELIMINATED BY NATL. AUTOMOTIVE FIBRES



ding automotive seat cushions, are lapped several feet deep on wooden "cattle-car" type castered trucks, which are ideally suited for this application. The padding material is then moved on the trucks to a station for the application of glue and a covering fabric. These inexpensive

600 SERIES DOUBLE BALL BEARING SWIVEL PLATE CASTER

Two full rows of ground polished and hardened ball bearings roll freely in two complete, hard-ened raceways for maximum maneuver-ability. King bolt nut is threaded for fine pre-cision adjustment of raceways.



SOLVES

THE TOUGH

1085

Series 600 Faultless Casters are made of a spe-

cial high tensile alloy material having extreme strength and high ductility to withstand shocks imposed upon it. Yet the material is hard enough to resist indentations from the ball bearings.

Illustration of top plate locking lugs shows how the lower ball race is positively anchored and locked to the top plate, giving friedom to the horn in swiveling between the two ball races. An exclusive Faultless feature,

your phone directory. He can give you delivery from stocks.

trucks, equipped with ball bearing swivel Faultless 606-6 Casters, solved the problem of handling a

bulky product easily and economi-cally. Partitioned floor trucks serve

as the second prime materials han-dling method for this large manufac-

turer. These partitioned trucks serve both as a fast and convenient way of

moving bulky fabrics, pressboard forms and assorted trim materials

between manufacturing operations and as temporary storage units for the same materials. As a result at least two expensive handling operations are completely omitted; eliminat-

ing the unloading of materials from trucks to shelves and back onto trucks when material is needed.

Since these operations are eliminated

several times daily, the yearly sav-ings are an important achievement. There are Faultless Engineered

Casters made for every conceivable

handling and equipment use,

whether requirements call for han-

dling of 7 pounds or 7 tons, indoors or outside applications, or use on

For latest Caster information, call your Faultless distributor, listed in

office chairs or jet engine stands.

Truck Enables One Man To Do Job of Two



Use of a Rol-Away truck permits one man at Pacific Metal Company to handle aluminum sheet, rod, bar, structural, extrusions, tubing, and pipe. The job formerly took two men. One man can move cases up to a thousand pounds by himself without any signs of fatigue. In addition, two men can load or unload box cars or trucks in the time it used to take four men.

Circle No. 350 on Inquiry Card-Page 17

Self-Dumping Hoppers Speed Bulk Handling



North Chicago Refiners & Smelters, Inc., reports bulk handling of scrap used in making brass and bronze ingots, copper anodes, zinc die castings and other alloys has been streamlined with the aid of Roura selfdumping hoppers. The hoppers are used to carry scrap from rail cars and trucks to segregated storage bins and also to carry scrap from the bins to the furnace. Another advantage of the hoppers is that they require no maintenance.

Circle No. 351 on Inquiry Card-Page 17

Count upkeep too when you price Industrial Trucks



The idea that the cheapest possible industrial truck is the best bargain is a pure myth. Electric industrial trucks admittedly cost more in the beginning. But they cost a good deal less in the end-averaging \$1000 per year savings per truck.

Upkeep is the big waste-factor in the operation of low priced trucks. And when you figure overall industrial truck cost, you've got to figure upkeep just as much as you do first cost.

Look how many ways electric industrial trucks save you money. They run on electric power-the cheapest power available. You take it right from your regular plant electric system and store it in the heavy duty, long-life batteries the trucks carry. Electric power means freedom from the costly price fluctuations common with other fuels. It's the only source of power that costs less today than it did 10 years ago, and is likely to cost still less 10 years from now.

The cool-running electric drive system does away with hundreds of moving parts and considerable friction wear. Hence it seldom breaks down and seldom needs expensive repairs and parts replacement. This not only saves you hundreds of dollars every year in materials and labor, but assures that your trucks will be on the job when you want them.

These are important cost considerations for up-to-date management men today. In addition, electric industrial trucks are easier to operate and make practically no noise-advantages especially appreciated by plant personnel. Have a talk with your nearby industrial truck dealer or salesman. He's listed in your classified telephone directory under "Trucks-industrial."

This message is presented as a service to industry by Exide Industrial Division, The Electric Storage Battery Company, Phila. 2, Pa.

THE ELECTRIC STORAGE BATTERY COMPANY Exide







Basco Separators Save Cabinet Maker \$2500

Use of Basco separators at Miami Cabinet Div., Philip Carey Mfg. Co., has lowered production costs \$2500 to \$2800 per year. At Miami Cabinet sheets of metal are supplied to the machines in stacks. Formerly, the biggest problem for machine operators was removal of single sheets from the stacks. This is where the separators come in—they lift the edge of the top sheet magnetically, regardless of any coating of grease or grime on the sheets. This creates a space which is large enough for the operator to grab the sheet.

CIRCLE NO. 352 ON INQUIRY CARD-PAGE 17



Switch to Formed Steel Wheels Saves \$48,000

A major automaker was using cast semisteel wheels on tractor drawn trains for interplant and intra-plant shipments. Wheel breakage amounted to 400 wheels per month among the 30,000 wheels in use. By switching to Saginaw Products Corp.'s formed-steel, molded-on rubber wheels with trailer duty casters, wheel maintenance costs have been cut \$48,000 per year. To date, 20,000 Saginaw wheels have been put in use and there has been no breakage.

CIRCLE NO. 353 ON INQUIRY CARD-PAGE 17

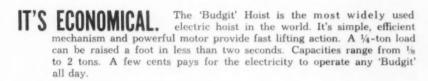


Automatic Scrap Transfer Saves 100 Man-days

An automatic system for transferring and storing scrap has saved one user 100 man-days in production time. It also eliminated transfer lines through production areas and automated an old-fashioned manual handling operation. Developed by Gifford Wood, the conveyor system consists of: an automatic, bucket-type skip hoist conveyor housed in a special shaft which conveys scrap vertically from the production area; an enclosed hinged-pan type conveyor for horizontal delivery to a storage bin and necessary interlocks.

CIRCLE NO. 354 ON INQUIRY CARD-PAGE 17





IT'S ADAPTABLE. Used alone, the 'Budgit' Hoist can serve a work area of 19½ sq. ft. To multiply the operational range of any 'Budgit' many times, we can supply a variety of low-cost jib and bridge crane assemblies. With any one of them every shop or factory can have efficient, easily-installed crane service that makes a single hoist do the work of several.

To protect the operator, the load and the hoist itself, the 'Budgit' has automatic upper and lower safety stops; one hand control; two instant-action brakes, each alone powerful enough to hold the load; fracture-proof hooks; enclosed wiring — and many more.

Your "Shaw-Box" Distributor can give you full details on 'Budgit' Hoists and crane equipment . . . or write us for Bulletin 406.



A 'Budgit' Hoist on full-revolving, self-supporting 'Load Lifter' Jib Crane can serve a 550 sq. ft. area. Excellent on shipping platforms, at machine tools, in foundry molding bays. Crane bolts to floor; rotates on ball bearings.



Used with a No. 62 'Budgit' Bridge Crane Assembly, a 'Budgit' Hoist can serve a 2,000 sq.ft, area. Crane comes in a "package"—your men can assemble the unit without drilling or machining.



A 'Budgit' Hoist on a 'Budgit' Gantry
"A" Frame provides economical
mobile service for machine shops,
service stations and places where
loads must be lifted and moved
anywhere in the work area.



Budgit ELECTRIC HOISTS

MANNING, MAXWELL & MOORE, INC.

SHAW-BOX CRANE & HOIST DIVISION 378 West Broadway, Muskegen, Michigan

Builders of "SHAW-BOX" and "LOAD LIFTER" Cranes, "BUDGIT" and "LOAD LIFTER" Hoists and other lifting specialties. Other Divisions produce "ASHCROFT" Gauges, "HANCOCK" Valves, "CONSOLIDATED" Safety and Relief Valves, "AMERICAN" and "AMERICAN MICROSEN" Industrial Instruments, and Aircraft Products.

In Canada: Manning, Maxwell & Moore of Canada, Ltd., Avenue Road, Galt, Ontario.





Fuel Costs Lowered \$1,000 per Month

Replacing a 70-ton steam locomotive with a 35-ton Plymouth Diesel hydraulic locomotive has resulted in a fuel cost saving of \$1000 per month for Philadelphia Slag Co., Philadelphia Pa. The steamer, which was used to haul cars of slag from bank to plant, used 25 tons of coal per week. Doing the same job, the diesel locomotive uses an average of only 75 gallons of oil each week. The company figures the fuel savings have already equalled the cost of the new locomotive.

CIRCLE NO. 355 ON INQUIRY CARD-PAGE 17



Pare Operating Costs With Reusable Containers

Material and production costs were lowered when Barringer Knitting Mills, Philadelphia, Pa., replaced paperboard cartons with vulcanized fibre containers for in-process transport of knitted goods. The change to the Kennett containers, made by National Vulcanized Fibre Co., eliminated soiling and damage, simplified handling operations, and saved the materials and labor required by carton replacement. It also helped minimize production delays.

CIRCLE NO 356 ON INQUIRY CARD-PAGE 17



Fork Truck Attachment Saves Thousands of Dollars

Two spikes were welded by the Aetna Waste Paper Co. of Chicago, Ill., on the fork carriage of Lamson Corporation's Mobilift industrial truck. Despite the simplicity of this addition, the spikes make it possible for Aetna to handle baled waste paper and corrugated board from any axis. The spike-equipped truck saves the company thousands of dollars every year by enabling it to load freight cars to maximum weights.

CIRCLE NO. 357 ON INQUIRY CARD-PAGE 17



GUESS WHO DIDN'T SPECIFY MONARCH INDUSTRIAL SOLID TIRES

Schnook, I told you to reduce our replacement tire costs! That "memo" I sent you lasted only 60 days!

But . . . Chief! I tried! We made an analysis and ordered our lift truck drivers to slow down!

Analysis? Slow down? Why didn't you save valuable time and specify MONARCH tires!

Monarch? What's so special about them?

You amaze me, Schnook! Don't you know MONARCH is the only industrial tire manufacturer specializing in solids? That their development-engineering and production facilities concentrate on producing the best solids on the market?

If they're that good they must cost more! How can I save by paying a premium for solids?

Wrong again, Schnook! MONARCH tires cost no more than other brands. They last longer because they're made from premium quality materials.

You win, Chief! I'll call the local Monarch dealer today for prices.



Why don't you check the Yellow Pages for your nearest Monarch dealer! Ask him, or write direct, for BULLETIN_TD-200. It contains factual proof that Monarch tires wear better . . . last longer.



459 LINCOLN PARK • HARTVILLE, OHIO • 7-255 General Motors Bldg., Detroit, Mich. • 1035 Bartlett Street, Hayward, Calif.

For More Information Circle No. 930 on Inquiry Card-Page 17

7264-MR





Scrap Unloading Time Cut 91%

Elesco Smelting Co. has cut the time required to unload a car of scrap from 24 manhours to 2 manhours with Hyster Lift Trucks and Load-Grab attachments. The lift truck operator can handle the unloading by himself where formerly, three men were needed. In addition, loading a trailer with ingots previously required three men 2 hours; now the same men, using a lift truck, get the same work done in 30 minutes—a 75% time saving. The lift trucks are also used to store containers, feed bales of scrap to the furnaces, to empty slag pots and to unload trucks with finished ingots.

CIRCLE NO. 358 ON INQUIRY CARD-PAGE 17



Power Docks Speed Up Truck Loading 25-50%

Genesse Brewery in Rochester, N.Y., is using Hartman Power Docks to speed up truck loading. The rectractable lip of the power dock is run into the trailer, lowered to trailer level and then loading operations can begin. Loading time saved by the power docks runs between 25-50%. In addition dock plates, which were cumbersome, subject to damage, and slower to use, have been eliminated. The up-down, in-out movement of the power dock is controlled by push button.

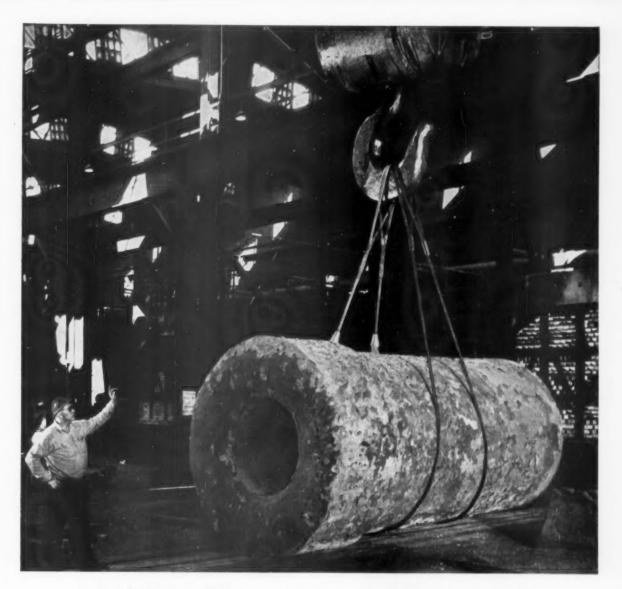
CIRCLE NO. 359 ON INQUIRY CARD-PAGE 17



Storage, Handling Costs Slashed \$15,000 per Year

Until recently, Lane Cotton Mills, New Orleans, La., had to store its bales of denim on the warehouse floor. Only bales wrapped in burlap could be stacked. Overhead space was wasted, often as many as 15 bales had to be moved to reach the one needed for shipment, accurate records were impossible, and the single aisle created a fire hazard. Installation of a Unistrut racking system has changed all this and is saving Lane \$15,000 per year. Storage capacity has been doubled, six men are now doing the work of the ten formerly needed.

CIRCLE NO. 360 ON INQUIRY CARD-PAGE 17



Bethlehem Slings Handle the Heavyweights

When making a lift involving heavy tonnage, you can always feel sure with Bethlehem slings.

Massive loads such as the one in the picture need prove no problem. In this instance, two different types of single-part slings were used in combination. It would be equally feasible to make the lift with braided slings, which are favorites of many shopmen. Perhaps you yourself would prefer still another type; whatever it might be, we could supply it quickly to your specifications.

Bethlehem slings are tremendously strong, for they are made of our top-quality wire rope, called Purple

Strand. They are flexible, easy to handle. Every detail of the workmanship is checked and double-checked before the slings leave our plant.

If there's ever a time when we can help you make a selection, please ask for our services. Bethlehem engineers, specialists in the lifting field, make hundreds of calls each year in response to customer requests. They will be glad to share their experience with you any time you need it—with no obligation on your part.

BETHLEHEM STEEL COMPANY, BETHLEHEM, PA.
On the Pacific Coast Bethlehem products are sold by Bethlehem Pacific Coast
Steel Corporation, Export Distributor; Bethlehem Steel Export Corporation

BETHLEHEM STEEL







Longer Battery Life Increases Truck Efficiency

Carling Brewery, at its Natick, Mass., plant, runs 15 battery-operated lift trucks 8 hours a day, 5 days a week. The trucks travel between 15 and 20 miles each day with loads ranging from 600 to 2000 lbs. C & D Slyver Clad batteries are used in all the electric trucks and the company reports these units provide up to 50% longer life.

CIRCLE NO. 361 ON INQUIRY CARD-PAGE 17



Saves \$400 per Month With Overhead Crane

A hardware manufacturer has been saving \$400 per month merely because it purchased a 5-ton tramrail transfer crane made by Cleveland Crane & Engineering Co. Installation of the crane has made it possible for the hardware firm to buy rods, bars and angle iron in 5-ton bundles. Previously the company was forced to buy smaller bundles because of handling problems and had to pay a \$2-per-ton bundling charge as a result.

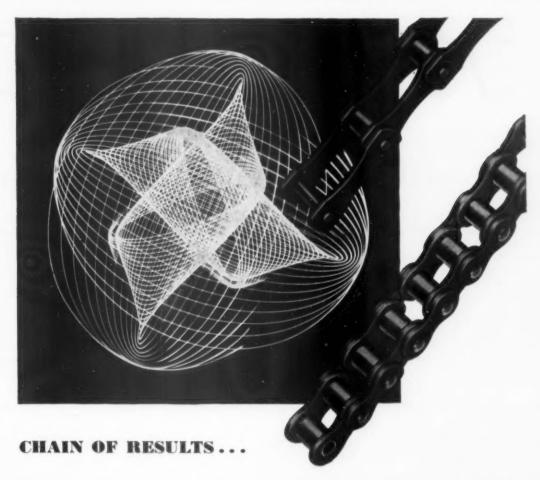
CIRCLE NO. 362 ON INQUIRY CARD-PAGE 17



Boxcars Unloaded

It used to take Marcal Paper Co., Chicago, 12 hours to unload boxcars filled with 800-lb paper rolls. Now, by using an Automatic Docker made by Automatic Transportation Co., unloading time has ben cut to an hour and a half. Equipped with a rotating paper roll clamp attachment, the Docker is able to pick up and carry the rolls in a vertical position and rotate them to a horizontal position. They are used both in tiering the paper rolls in storage for delivery from storage to the manufacturing area.

CIRCLE NO. 363 ON INQUIRY CARD-PAGE 17



Your production programs . . . today's and tomorrow's . . . demand results. Your engineers welcome consultation in drive and conveyor designs . . . from both initial concept and improved efficiency standpoints.

In both areas, Whitney Chain brings you an outstandingly complete chain drive service—from basic design and development to reliable deliveries and rapid replacements.

Added to this are two recent Whitney pace setters— Self-Lubricating Single and Double Pitch Roller Chain and fatigue resistant Processed Roller Chain. They bring cost saving concepts that deserve consideration for your drive-design programs.

Whitney Self-Lube Roller Chain outlasts regular chain by as much as 5 to 1 under severe continuous operation exposed to dust or moisture. Here, Whitney's exclusive sintered steel bushings "oil cleanly from the inside", are prelubricated for life. This revolutionary development has opened new design opportunities in both agriculture and industry.

And, Whitney's new fatigue resistant Processed Roller Chain is establishing new service standards for durability, particularly on problem drives involving unusual operational conditions, stresses and heavy shock loads. This performance comes from the exclusive Whitney process which offsets excessive operational stresses in the chain.

These new dynamic, balanced chain designs serve better, longer and at less over-all cost. And, so does the entire Whitney line of A.S.A. Roller, Silent and Conveyor Chain Drives . . . all precision engineered for top quality.

Whitney Field Engineers provide nation-wide consultant service, backed up by company operated warehouses and alert Whitney Distributors offering a complete off-the-shelf stock service.

If you want RESULTS specify WHITNEY CHAIN.

Whitney

207 HAMILTON ST., HARTFORD 2, CONN.

ER CHAIN . SILENT CHAIN . CONVEYOR CHAIN . SPROCKETS . FLEXIBLE COUPLINGS

THE BIG

306-ton tower erected with American Tiger Brand

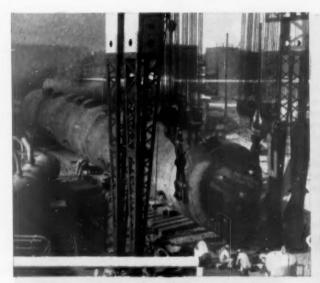
Setting A Steel Cylinder on end may not sound like a tough job. But when it goes up in the middle of an operating refinery, weighs 306 tons, is over 42 feet around and towers six stories high, it challenges the best engineering talent in the country.

This difficult job was handled without a hitch by the Construction Department of the M. W. Kellogg Company of New York for a large refinery in the Southwest. The tower was built in the fabricating plant and brought to the location on a specially built railroad spur.

Two gin poles were erected on each side of the track with a total capacity of 400 tons. These were rigged with 8800 feet of American Tiger Brand Wire Rope, 7/8-inch diameter, 6 x 19, Improved Plow Steel with Independent Wire Rope Core.

The lower blocks on each side were attached to a toggle bar carrying an equalizer sheave between the blocks so that a single load line could be reeved through the whole block system. Each end of the line went to a separate winch. With this rigging method, lifting forces of the individual winches were automatically synchronized and equalized, and the toggle bar and sheaves on each side therefore remained level at all times.

Actual lifting took about eight hours. Four pneumatically powered crab winches furnished the pull to lift the top of the vessel while the



Tower ready for the lift showing wire rope rigging and universal-jointed lifting linkage.



Tower on its way up among tanks, piping, heat exchangers and other equipment.

AMERICAN STEEL & WIRE DIVISION

United States Steel, General Offices: Cleveland, Ohio

COLUMBIA-GENEVA STEEL DIVISION, SAN FRANCISCO - TENNESSEE COAL & IRON DIVISION, FAIRFIELD, ALA., SOUTHERN DISTRIBUTORS
UNITED STATES STEEL EXPORT COMPANY, NEW YORK

USS AMERICAN TIGER BRAND WIRE ROPE

Excelley Preformed



UNITED STATES STEEL

47570

Wire Rope

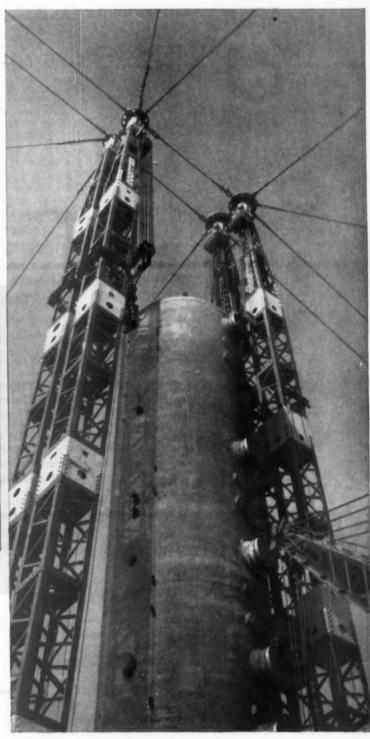
bottom was moved forward on a sled toward the foundation. As soon as the vessel was suspended and the foundation cleared, the signal was given to lower away! Like a monster candle into a candlestick, the tower came to rest, was anchored and the job was finished.

The "Big Lift" became another spectacular job handled by Tiger Brand Wire Rope. For more information, write for our booklet, "American Tiger Brand Wire Rope."



Power for the lift was provided by two pairs of pneumatic crab winches. Each winch in a pair hauled one end of the same load line.

Here the full 306-ton tower hangs from the gin poles suspended by \%" diameter Tiger Brand Wire Rope.



For More Information Circle No. 933 on Inquiry Card-Page 17





Double Storage Capacity, Cut Inventory

Gordon Lumber Co.'s central distribution yard now is storing and handling twice as much lumber because their Hyster Lift Truck and End-Loader make possible end-piling of up to 18 ft lengths of lumber on both sides of a 20 ft aisle instead of only one side. Equipped with a side-shift attachment with which it's possible to move a load 4 in. to the right or left of normal position, the amount of truck maneuvering necessary is reduced.

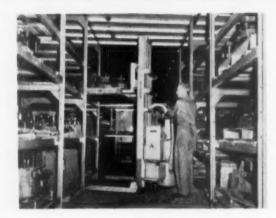
CIRCLE NO. 364 ON INQUIRY CARD-PAGE 17



Tongs Replace Elevator, Costs Go Down

When the freight elevator at Sealright Co.'s Fulton, N.Y., plant wore out, the company decided to replace it with automatic tongs suspended from an electric hoist for use in storing 3300-lb rolls of paper. The change has lowered labor costs and expedited handling. Previously paper was taken off a truck, pushed 50 ft to the elevator, and then three or four rolls were taken down to the basement where they were moved by a lift truck to the storage area.

CIRCLE NO. 365 ON INQUIRY CARD-PAGE 17



Storage Area Increased 25% With "Walkie" Fork Truck

Conversion from a rider-type fork truck to an electric "walkie" unit increased storage floor space 25% for McCulloch Motors Corp. Using a Lewis-Shepard JackStacker, McCulloch has been able to reduce the width of its aisles from 12 to 9 ft. The JackStacker also makes it possible to stack goods higher than 10 ft. Operated from a control panel in the handle while the operator walks along with it, the unit has two speeds, forward and reverse, and has an automatic timing device.

CIRCLE NO. 366 ON INQUIRY CARD-PAGE 17

For More Information Circle No. 934 on Inquiry Card—Page 17→ PURCHASING



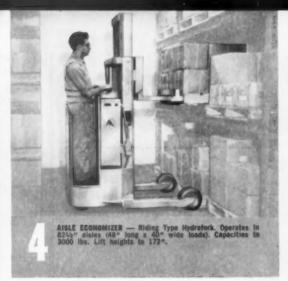
AISLE COMPRESSOR—Platform Type JackStacker. Operates in 69" alsles (48" long x 40" wide loads). Capacities to 6000 lbs. Lift heights to 150".



NARROW-AISLE WALKIE — Open-Faced Pallet Type JackStacker. Operates in 69" aisles (48" x 40" long loads). Capacities to 6000 lbs. Lift heights to 125"



MIGH STACKER — Straddle Type JackStacker. Operates in 72" aisles (48" long x 40" wide loads). Capacities to 6000 lbs. Lift heights to exec 200"



6 ways to narrow aisles... expand your storage or production areas

Each of the space-saving, money-saving Lewis-Shepard Electric Trucks shown here can operate easily in 7-foot aisles, or less

Want to put unused storage space to use? Let the rugged, smooth-operating Lewis-Shepard electrics illustrated here help you. Differing in detail, nevertheless they all have one thing in common . . . aisle-saving compactness. By reducing existing aisles, Lewis-Shepard equipment has created thousands of extra cubic feet of storage area without laying a brick.

Beside compact construction, other practical advantages common to L-S trucks include . . . lifetime lubrication, which ends forever the need for greasing; roller masts, eliminating friction wear; gear drive, which means no chains to break — no clutch to wear; magnetic controls, to provide instant speed selection and braking.

Lewis-Shepard, manufacturer of the most complete line of industrial trucks, anywhere, offers you powertiering equipment in either rider, or walkie types — each a leader in its special field. For catalogs on trucks shown here, mail coupon.



Use coupon below for further information on Narrow-Aisle
LEWIS-SHEPARD Trucks

LEWIS-SHEPARD

495 Walnut Street, Watertown 72, Mass.

ADDRESS

Send me catalogs on L-S Narrow Aisle Trucks.

HAME

CONFANY

CII Lodestar



Built to serve you without costly maintenance



Lodestar is the first truly "heavy duty" version of the small electric hoist. The CM Lodestar is designed to operate without costly maintenance or interruptions in your work schedules. The initial cost is practically your only cost with a Lodestar...an extremely low cost indeed!

WRITE US or call your CM distributor for literature, prices and quick delivery from stock.

CHISHOLM-MOORE HOIST DIVISION

Columbus McKinnon Chain Corporation

Tonawanda, New York

REGIONAL OFFICES: NEW YORK . CHICAGO . CLEVELAND In Canada: McKinnon Columbus Chain Limited, St. Catharines, Ortario For More Information Circle No. 935 on Inquiry Card-Page 17

HOISTS AND CHAIN

Splitting Stacks of Boxes Makes Handling Easier



Any company where cartons, cases or boxes are handled by clamps can use this one: At Johnston Fruit Co. when boxes are deposited, the fork truck operator opens the jaws of the Yale citrus clamp about 4 in. before the load is placed on the floor. This action splits the boxes into two separate stacks and facilitates further handling of the individual stacks by twowheeled hand trucks.

Circle No. 367 on Inquiry Card-Page 17

Special Fork Truck Attachment **Handles Paper Easily**



To handle its big paper rolls, Uarco's Chicago plant is using an Automatic Skylift fork truck with special paper roll clamps. The clamps revolve in a forward direction rather than sideways. When paper rolls are set down this way, they remain stationary; otherwise they have a tendency to roll or tip over. The clamps are designed so that a paper roll can be lifted even when the clamp is able to grip less than 180 degrees of its circumference.

Circle No. 368 on Inquiry Card-Page 17

Lift Truck Attachments Lower Handling Costs



Using a number of lift truck attachments, Pacific World Shipping Co. is able to handle with greater efficiency a wide range of packaged and unpackaged goods from receiving through palletizing, packaging, storage and shipping. Company officials state that the attachments have cut handling costs considerably. In one application, Pacific uses a Hyster 4000-lb cushion tire truck, equipped with a Load-Grab attachment (with suitable arms) to handle paper rolls, crates, strapped dimensional lumber, oil drums, bags on pallets, plywood sheets etc.

Circle No. 369 on Inquiry Card-Page 17

Fork Truck Lowers Inspection Cost



To speed inspection, a fork truck is used to maneuver an x-ray head into position to inspect aircraft at the Northwest Orient Airlines overhaul depot, St. Paul, Minn. A Clark-Ross fork truck lifts the x-ray into positions that would ordinarily be inaccessible without disassembly of parts to be inspected or use of special scaffolding. The x-ray head and its oil cooler are mounted on a special dolly equipped with tang slots for the truck's forks.

Circle No. 370 on Inquiry Card-Page 17

Now Now Plantic Wheels One wheel for any section of your plant

Now, for the first time, you can standardize on one wheel for all your materials handling equipment in any section of your plant. Regardless of the types of floors or floor conditions, Fairbanks new "LAMILON" Wheels will:

- Protect your floors. "LAMILON" Wheels stay smooth and concentric, will not mar or mark, because of exceptionally high impact strength and abrasion resistance.
- Show no affect from oils and greases and a very high resistance te most chemicals. "LAMILOH" Wheels have a water absorption factor almost as low as high quality rubber and will not deteriorate in wet floor conditions.
- Roll easier with alloy steel roller hearings, hardened steel outer race and provision for pressure lubrication. "LAMILON" Wheels roll easier than semi-steel wheels in most instances.
- Last longer and give more dependable service than any other plastic wheel.

"LAMILON" Nylon-Reinforced All-Plastic Wheels are available in sizes 3 through 12 inches and can be furnished with thread-tight thread guards.

Fairbanks complete line of industrial caster and truck wheels includes the finest vulcanized rubber tired wheels (sizes 3"-18") on the market, solid rubber wheels (sizes 2"-8") and semi-steel wheels (sizes 2"-18").

FAIRBANKS
"LOCKWELD"
CASTERS
WITHOUT
KING-PIN

Easiest swiveling, longest lasting. Unique patented "LOCKWELD" construction eliminates king-pin, chief source of caster failure.

Illustration: Series "23" double ball race swivel casters, sizes 3"-8". Single ball race swivel casters, sizes 2"-6" and matching rigids available.



Fairbanks compa

Executive Office — 393 Lafayette Street, New York 3, New York
Valves • Dart Unions • Casters • Trucks • Wheels

● 520 Atlantic Ave.,Boston 10, Mass. ● 393 Lafayette Street,New York 3, New York ●15 Stanwix St., Pittsburgh 22, Pa. ● 202 Division St., Rome, Ga. ● Factories — Rome, Georgia and Binghamton, N. Y.

For More Information Circle No. 936 on Inquiry Card-Page 17



Cost Cutting Catalogs

Batteries for Fork Trucks

A 4-page bulletin describes a line of industrial batteries reportedly designed for "extra capacity" to provide *power plus* for a heavy duty cycle. The line includes batteries boosted to capacity of 66 and 125 A. H. which fit the same size tray.

C & D Batteries Inc.

Circle No. 371 on Inquiry Card-Page 17

Belting for Every Application

No one belt can handle every conveying job. Different jobs require different belts. That's why a new catalog consists of a loose leaf binder with fillers, so product listings can be kept up to date. Technical data and inquiry forms are also included.

Imperial Belting Co.

Circle No. 372 on Inquiry Card-Page 17

Buying an Industrial Battery?

"So you're going to buy an Industrial Battery" is a short, easy-to-read booklet designed to provide basic information that you should know as a buyer of batteries. The book assumes that your objectives are lower costs, greatest work units, and profitable operation and attempts to show you how to meet them.

Gould-National Batteries Inc.

Circle No. 373 on Inquiry Card-Page 17

Chain Hoist for High Efficiency

Catalog 1372B devotes its 44 pages to a discussion of selecting the proper type of hoisting and providing specific information on various model hand hoists, pul-lifts, and trolleys. Each basic model is illustrated as well as described in terms of specification, features, etc.

The Yale & Towne Manufacturing Co.

Circle No. 374 on Inquiry Card-Page 17

"Do It Yourself" Slings

"Tuffy Sling Handbook," XX SL-No. 2, is a comprehensive 64 page buying guide for a wide variety of wire rope slings and fittings. Particularly interesting are the series of illustrated directions on how to "do it yourself" on splicing wire rope to make various types of slings.

Union Wire Rope Corporation

Circle No. 375 on Inquiry Card-Page 17

Electric Hoists for Industry

A line of electric hoists with capacities ranging from 1,000 lbs. up to 12,000 lbs. is described in Bulletin No. 410. The line features ease of maintenance along with the added advantages of low headroom, 24 volt push button control, ball bearing construction, etc.

Shaw-Box Crane & Hoist

Circle No. 376 on Inquiry Card-Page 17

Lifts Cut Loading Time

A 4-page bulletin describes a line of industrial lifts that is designed to cut loading time as much as 75% on dock ramps. The lifts are said to be easily installed in any location and feature a self-contained power unit.

The Wayne Pump Co.

Circle No. 377 on Inquiry Card-Page 17

Lift Trucks with Many Features

Construction details, operating characteristics, and maintenance features of a new line of fork trucks are described in a 16-page three-color brochure, titled "Clarklift Features." Numerous photographs and simplified drawings help explain many of the engineering features of the six-model line.

Industrial Truck Division Clark Equipment Co.

Circle No. 378 on Inquiry Card-Page 17

Light Duty Fork Trucks

Economical operation involves using the right tools for every job. A new 4-page bulletin describes a line of fork trucks especially engineered to handle jobs up to 1500 lbs. economically. Both platform and fork models are included.

Economy Engineering Co.

Circle No. 379 on Inquiry Card-Page 17

Trucks for Lower Handling Costs

Electric driven trucks for every industrial application are featured in a new 16 page catalog. Described are various models of fork trucks, platform trucks, pallet trucks, tractors, cranes and other special equipment and attachments. Illustrations facilitate selection of the right equipment.

Automatic Transportation Co.

Circle No. 380 on Inquiry Card-Page 17



In carrier landings, planes coming in at more than 100 knots are stopped in a split second. This amazing performance is made possible by having each plane hook onto one of several wire ropes stretched across the flight deck. Both plane and rope receive an almost unbelievable shock at the moment of contact. Needless to say, only top-quality wire ropes can be used for this application because . . .

you can't bargain with safety

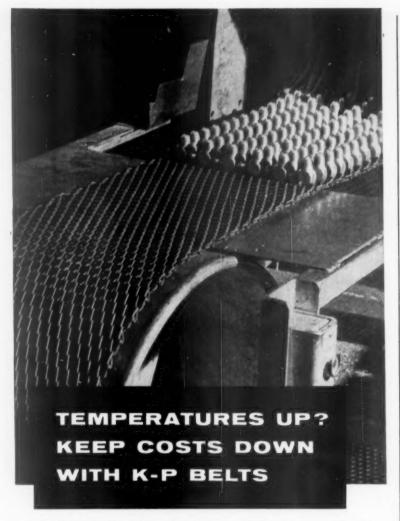


LOOK FOR THE YELLOW TRIANGLE While your use of wire rope differs from this carrier application, safety should be just as important to you. For, although a "bargain" rope may save you money, it can cost you your peace of mind. So don't bargain with safety. Buy a rope that's a quality rope—buy Wickwire Rope.

PRODUCT OF WICKWIRE SPENCER STEEL DIVISION THE COLORADO FUEL AND IRON CORPORATION

THE COLORADO FUEL AND IRON CORPORATION—Derver * Mouston * Odessa (Tex.) * Phoenix * Sait Lake City * Tulsa
PACIFIC COAST DIVISION—Los Angeles * Oakland * Portland * San Francisco * Seattle * Spokane
WICKWIRE SPENCER STEEL DIVISION—Boston * Buffalo * Chattanooga * Chicago * Detroit * Emlenton (Pa.) * New Orleans
New York * Philadelphia

For More Information Circle No. 937 on Inquiry Card-Page 17



This Korb-Pettit woven wire belt is used for copper brazing at 2050°F. Proper design and alloy selection help keep operating costs at a minimum.

Whether your processing involves brazing heat, subzero cold, corrosive action of gases and liquids, or other destructive forces, a Korb-Pettit custom-engineered woven wire conveyor belt will meet your needs.

K-P woven wire belts are available in a wide variety of alloys, in standard and special constructions, with mesh openings from 1/64" to 3". Their flexibility, strength, and draining and circulating characteristics meet the demands of conveying materials larger than 1/64".

To find out how Korb-Pettit belts and other Hewitt-Robins products and services can help you, consult your classified telephone directory for the nearest H-R representative, or contact Hewitt-Robins, Stamford, Connecticut.

HR HEWITT-ROBINS

CONVEYOR BELTING AND IDLERS... POWER TRANSMISSION DRIVES INDUSTRIAL HOSE,... VIBRATING CONVEYORS, SCREENS & SHAKEOUTS

For More Information Circle No. 938 on Inquiry Card-Page 17

Jack Solves Tricky In-plant Handling Problem

International Mfg. Co., solved a difficult in-plant traffic problem involving moving punches and dies and lifting them to a press. The firm purchased a Blackhawk 1½ ton Service Chief hydraulic one-end lift. International modified the jack by fitting the unit with a movable wheeled carriage and special lifting platform. Now the modified jack can lift punches and dies to the press with just a few strokes of the handle and can also stack the parts.

Circle No. 411 on Inquiry Card-Page 17

Levelers at Shipping Dock Eliminate All Hand Labor

In the warehouse shipping area of General Tire & Rubber Company, "home-made" steel throw plates were used to span the gap between the dock and the truck bed level. This required extra labor. The various types and sizes of trucks to be handled made it impossible to load and unload efficiently. Five Wayne Truck Levelers, in use since early 1956, permit General Tire to handle trucks of varying bed heights. They can be unloaded with all types of materials handling equipment.

Circle No. 381 on Inquiry Card-Page 17

How to Put a Top on a Refrigerator Car—Faster



Two Yale Load King electric hoists mounted on trolleys are used to place the ceilings on refrigerator cars at Pacific Car & Foundry, Renton, Wash. When the car assembly process is completed, the ceiling is placed on the floor. The hoists are attached to a metal spar which has cross members with clamps that are secured by workers to the refrigerator car ceiling beams. The hoists then raise the ceiling 15 ft in the air, transport it across the top of a raised work scaffolding. and lower it accurately into place on top of the car. In this operation, the hoists operate in tandem through dual controls which are synchronized by a mechanically actuated master switch cam. Circle No. 382 on Inquiry Card-Page 17

Unique Racks Ease Handling of Bulky Engines

Uniquely designed racks have simplified handling of bulky engines for Studebaker Packard Corp. at its Utica, Mich., plant. The racks have runners which ride conveyor lines and also are equipped with lugs for high stacking. The conveyors, in addition to being a transporting media, also act as a temporary storage bank for the racks until the trucks are available to remove them. For shipment to the company's Conner body assembly plant, the loaded racks are placed in outbound carriers and empty racks are returned knocked down. The company has been using 6000-lb capacity Elwell-Parker fork trucks to handle the engines.

Circle No. 383 on Inquiry Card-Page 17

Wire Rope Slings Handle Heavy Steel Loads Safer

A steel construction company unloads thousands of tons of steel in the course of a year at new building sites. Trouble was continually experienced with the wire slings that they had been using because the rope kinked. There were also some instances of outright rope failure. For the past two years, only Union Wire's "Tuffy" slings are used. There has not been a single case of rope failure and the extra flexibility and freedom from kinking speeds up unloading in congested city areas.

Circle No. 384 on Inquiry Card-Page 17



It contains complete details on all Campbell Sling Chain equipment—together with lots of valuable information on care and use. And you'll find step-by-step instructions for ordering each type of sling chain and attachment—illustrations—specifications and working load limits for all grades,

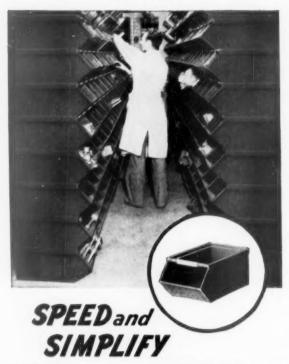
CAMPBELL CHAIN Company

CAMPBELL CHAIN

Main Office, Yerk, Pa. • West Burlington, Iowa Portland, Oregon • Sacramente, California

Makers of Famous CAMPBELL Lug-Reinforced TIRE CHAINS

For More Information Circle No. 939 on Inquiry Card-Page 17



HANDLING and STORAGE of PARTS, TOOLS and MATERIALS

STACKBINS FIT ANY CAPACITY REQUIREMENT OR SPACE LIMITATION IN PROCESSING, IN ASSEMBLY AND IN STOCKROOMS — Stackbin units stack solidly and compactly in flexible groupings to suit your needs. No tools or fasteners required.

STACKBINS REDUCE HANDLING TIME — SPEED PRODUCTION — Stackbins are used for intraplant transportation, on production lines and in assembly work. Full-flow hopper front and perfectly smooth interior of Stackbins keep contents always visible and easily accessible.

STACKBINS ARE MADE OF HEAVY ALL WELDED STEEL — AVAILABLE IN SEVEN STANDARD SIZES from 3%'' x 6'' x 3%'' to 15'' x 24'' x 11''. Other sizes to order.

MOVABLE BASES AVAILABLE — Permit easy unit load handling. Improves housekeeping, makes cleaning easier.

FREE CATALOG WRITE TODAY



STACKBIN CORP. 1127 Main Street, Pawtucket, R. I. Mfgd. & sold in Canada exclusively by Wickware-Stackbin, Ltd., Ottawa



For More Information Circle No. 940 on Inquiry Card-Page 17

Hoppers Help Solve Outside Storage Problem



Cincrete Corp., Long Island City, N.Y., is getting greater use of its outside storage areas by enploying self-dumping hoppers to carry materials to areas not reached by crane. Cincrete manufactures cinder blocks and receives its cinder aggregate by barge. An overhead crane transfers aggregate from barges to a storage pile a few yards from the dock. However, variances in production frequently cause the storage pile to grow to big for effective handling. When this happens the crane dumps aggregate directly into a Roura self-dumping hopper and the load is taken by fork truck to another area.

Circle No. 385 on Inquiry Card-Page 17

Speed Passage of Materials Bin



At one time, Davison Chemical Co., Bartow, Fla., used to station a man near a bin discharging granular material to see that there was no build-up as it flowed through the bin. This costly, primitive practice has been abandoned in favor of installing Cleveland vibrators on the bins. One type RC-50 unit, installed on each of two bins, keeps material moving, unattended, in a steady flow without build-up.

Circle No. 386 on Inquiry Card-Page 17

Fork Lift Attachments Handle Roofing Shingles Undamaged



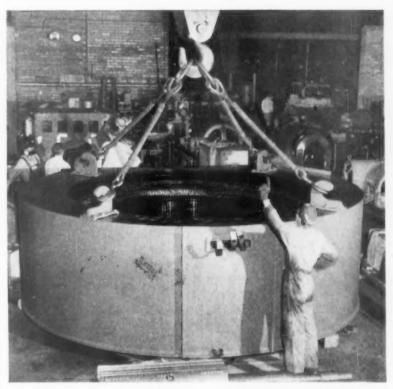
The Hawley-Gilbert Company is a large distributor of building materials in Portland, Ore., and its vicinity. It finds that materials handling operations can be considerably speeded and done more efficiently by improvising attachments for standard industrial trucks. For example, a Mobilift unit, the product of Lamson Mobilift Corp., has been equipped with chiseled forks to handle a 1,680 lb load of roofing material. The forks are lubricated with old engine oil. They can thus be inserted under the shingles and be deposited on pallets without damage to the shingles.

Circle No. 387 on Inquiry Card-Page 17

Hoppers Cut Scrap Handling Time, Boost Salvage Efficiency

Scrap handling time at Verson Allsteel Co. has been drastically reduced since it substituted Roura self-dumping hoppers for wheelbarrows and scoops. In addition, the change has made scrap segregation practical for the first time. Scrap handling formerly tied up several men for hours; now it's a one-man operation. The worker moves through the plant shoveling scrap into several dozen hoppers. Then he uses a fork truck to cart the hoppers to semitrailers outside the plant. The hopper is then dumped and forktrucked back to its station.

Circle No. 388 on Inquiry Card-Page 17



HANDLING HEAVY STATOR FRAMES



SLING SAFETY INCREASED WITH WELDLESS LINKS

Replacing welded rings and links with drop forged Crosby-Laughlin Rings, Sling Links and End Links substantially increases the safety of wire rope and chain slings. Materials handing experts in leading industries specify these weldless, heat treated sling fittings because of their greater strength and reliability in all lifting assignments. Crosby-Laughlin Weldless Rings, End Links and Sling Links, are available with stock diameters up to 13s". Your supplier has detailed information on the various sizes and capacities of these fittings.

At Electric Machinery Mfg. Company, Minneapolis, Minn., production of large industrial motors and generators involves many heavy lifts. The stator frame shown above weighs approximately 30 tons and is part of a vertical waterwheel generator that will produce 3750 KVA, 4160 volts.

To handle these heavy subassemblies, E-M uses Crosby-Laughlin Eye Hoist Hooks on chain and wire rope slings. Drop forged Crosby-Laughlin Hooks are designed for strength without excessive weight. Careful forging and controlled heat treating of the special quality steel results in greater safety factors on maximum lifts.

Crosby-Laughlin also manufactures safety versions of the eye hoist hook that have a positive, non-jamming latch and spring mechanism. Loads stay on Crosby-Laughlin Safety Hooks until they're released. For hazardous atmosphere use, investigate Crosby-Laughlin Non-sparking bronze Safety Hooks. See your leading mill supply house or industrial distributor for complete data and capacities on eye, shank, swivel, grah and slip hooks drop forged by Crosby-Laughlin.

World's Most Complete Line of Fittings For Wire Rope and Chain

CROSBY LAUGHLIN LEBUS

FORT WAYNE 1, INDIANA

For More Information Circle No. 941 on Inquiry Card-Page 17



are often attained by using "the one BEST block" for a specific load. MADESCO Blocks correctly designed and engineered for your specific operation may effect savings YOU can benefit from!

Twenty-five years' experience in designing and making blocks for "a-thousand-and-one" different uses means that MADESCO Blocks help speed hoisting, give trouble-free service, help prolong rope life.

Write-today-for bulletins and consult us about your specific needs.

MADESCO TACKLE BLOCK CO. EASTON, PA.



For More Information Circle No. 942 on Inquiry Card—Page 17

Conveyer Belt Puts Zip in Order Processing



A conveyor belt which runs through the stock room and shipping areas is the backbone of the lightning fast order filling technique used at Brown & Sharpe Mfg. Co., Providence, R.I. Goods picked from the shelves in the stockroom are placed on the conveyor and sent to the shipping room. The belt has a stripe down the middle and a switch plate at the shipping room end automatically deflects the items which have been placed on one side of the stripe into the parcel post packing line. Items on the other side of the stripe are deflected into the consolidation station. Then the goods are sent on to the freight and express packers.

Circle No. 389 on Inquiry Card-Page 17

Cost Studies Show Big Savings With Diesel Fork Trucks

Cost comparison studies by Brown & Ryan, Montreal, Quebec, stevedoring firm, show considerable cost savings with diesel fork trucks compared with comparable gasoline-powered units. According to Brown & Ryan, fuel cost was cut 76 percent. With gasoline fork trucks the company was spending \$4.25 per day per truck. The diesel truck fuel cost averaged \$1 per day. Down-time records also showed that the Allis-Chalmers Diesel trucks required 10 percent less maintenance than the company's other equipment.

Circle No. 390 on Inquiry Card-Page 17

PLEASE USE INQUIRY CARD PAGE 17



RUBBER TREADS . . . a wide choice of treads suited to all types of floors, including Darnelloprene oil, water and chemical-resistant treads, make Darnell Casters and Wheels highly adapted to rough usage.

RUST-PROOFED . . . by zinc plating, Darnell Casters give longer, care-free life wherever water, steam and corroding chemicals are freely used.

LUBRICATION . . , all swivel and wheel bearings are factory packed with a high quality grease that "stands up" under attack by heat and water. Zerk fittings are provided for quick grease-gun lubrication.

STRING GUARDS . . . Even though string and ravelings may wind around the hub, these string guards insure easy rolling at all times.



For More Information Circle No. 943 on Inquiry Card—Page 17 PURCHASING









Case Histories
of
Value Analysis
in

Packaging & Shipping





Small Parts Packed For 60% Less Cost

An automatic packaging machine that seals up to 6000 parts per hour to Air Force Specifications has reduced packaging costs of "O" rings by 60% at the Aircraft Engine Div., Ford Motor Co., Chicago, Ill. Designed by Product Packaging Engineering, the machine provides a complete automatic packaging system. Small parts are sealed in individual envelopes, each printed with part and contract number.

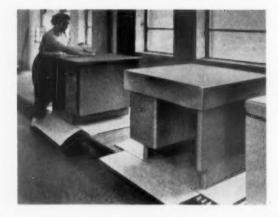
CIRCLE NO. 412 ON INQUIRY CARD-PAGE 17



Shipping Heaters in All-Corrugated Containers Costs 20% Less

Instead of using corrugated containers with wood reinforcements to ship its water heaters to customers, Hotstream Heater Co., Cleveland, Ohio, now uses an all-corrugated Drumpak container, designed by Gaylord Container Corp. It finds that these containers with their top and bottom corrugated pads hold the heaters firmly in place so that damage in transit is now neglible. In addition, container costs have been reduced 20%.

CIRCLE NO. 413 ON INQUIRY CARD-PAGE 17



Bags of Treated Paper Produce Double Savings

A packaging change brought substantial savings to Haskell, Inc., Pittsburgh manufacturer of office furniture. The company had been covering the top of its steel desks with sheets of kraft paper before packaging in cartons. Scratches appeared on the finish of the desks. When Central States Paper & Bag Co. recommended a paper, treated to make it super smooth, and supplied in the form of a bag to enclose the desks, the problem of surface finish abrasion was solved. In addition, covering time was cut from 1 minute to 10 seconds.

CIRCLE NO. 414 ON INQUIRY CARD-PAGE 17

All-Corrugated Container Saves Manufacturer 20%

Hotstream Heater Company has changed to an all-corrugated Drumpak container for shipping water heaters. The objective was to develop a package composed entirely of corrugated—including top and bottom pads. In addition to holding the heaters firmly in place, the pads have proved less expensive and more effective than wood. Hotstream found that container costs were reduced 20%, packaging production increased 30% and storage area capacity increased 20%.

CIRCLE NG. 415 ON INQUIRY CARD-PAGE 17



Steel Strapping Reduces Packaging Time 54%

To ship odd-shaped castings safely, a New York manufacturer used corrugated board cartons. Six castings were packed in each large carton. By using Stanley steel strapping in a unique application, 54 castings are Uni-tied on a single pallet. Strapping is threaded through openings in the castings and tensioned with an OXN hand tool. Strapped skid loads have proved 100% transportation-proof and can be unloaded in a fraction of the time formerly given to those packed in cartons.

CIRCLE NO. 416 ON INQUIRY CARD-PAGE 17



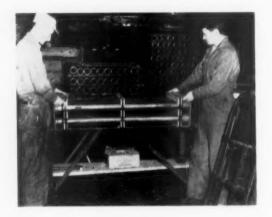
Unitized Shipping Cuts Product Damage

A problem in shipping ball bearings for auto power steering mechanisms was solved by a Connecticut concern when it strapped individual containers and then Uni-tied 20 of the cartons with steel strapping to an inexpensive, expendable pallet. Each pallet load of ball bearings weighs approximately 2,100 pounds and there has not been a damaged shipment of the company's products since it started using this method.

CIRCLE NO. 417 ON INQUIRY CARD-PAGE 17







Switch from Crates to Open-Packing Saves \$35,000 a Year

The manufacturer of Duriron pipe formerly used wired crates to package various lengths and sizes of its products which are shipped by truck and rail. The Ohio company switched to open-packing secured by Stanley steel strapping and has saved \$35,000 in a year. Weights of shipments have been reduced by 15% on the average. Strapping is applied around protective corrugated-board end caps and the cradles at each end of the package.

CIRCLE NO. 418 ON INQUIRY CARD-PAGE 17



Plastic Bags Reduce Packaging, Counting Time

In five years of shipping more than 5,000 miniature radio frequency connectors daily in individual film bags made of Bakelite polyethylene, not one bag has ripped or torn in shipment. Dage Electric Company, Inc. found that the film not only resists abrasion and tearing but has saved them from 20 to 50% of the time formerly required to package and count units for shipment because of the easier handling characteristics of the film.

CIRCLE NO. 419 ON INQUIRY CARD-PAGE 17



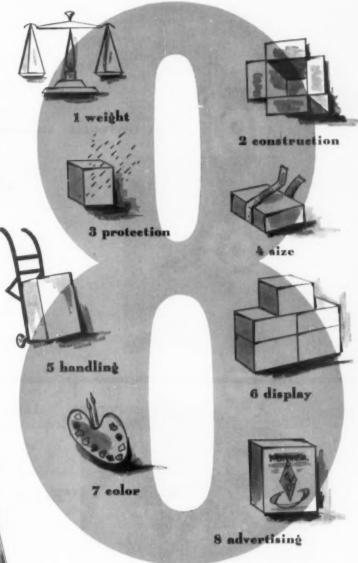
Air Cargo Permits Faster Turnover of Investment

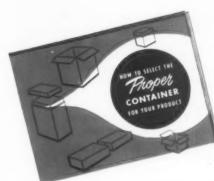
A United States importer of Angora sweaters found that it cost him less than 2% on his capital investment to use air transportation from Rome to New York as compared with surface transportation. By using Trans World Airlines Air Cargo, he was able to complete his sale and be reimbursed on his \$10,000 capital investment every four days, instead of every sixteen days as with slower means of transportation.

CIRCLE NO. 420 ON INQUIRY CARD-PAGE 17

The RIGHT Container to do the job BEST

is customized 8 ways to your product... and your merchandising methods





New FREE BOOK

"How to Select the Proper Container For Your Product"

Just off the press, this new book is packed with important information for every business man concerned with buying containers. It covers fully the 8 points to consider in selecting a corrugated container-important details that can result in giving you a better container at lower cost. Many of the country's leading companies have benefited greatly from this information supplied by Stone Container Corporation.

Send for this new free book "How to Select the Right Container For Your Product," today! You will find it worthwhile, informative reading.

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W. C. Ritchie and Company

Folding cartons, set-up boxes, fibre cans, tubes, spools, cores, transparent boxes, and paper specialty displays

Western Paper Box Company Detroit, Michigan

Corrugated containers, folding cartons and set-up boxes

For More Information Circle No. 944 on Inquiry Card-Page 17





Wirebound Boxes Save \$20,000 A Year on Navy Contract

Packaging of Navy practice bombs, manufactured by The Tredegar Company, in wirebound boxes saves the Navy about \$20,000 a year. The wholly prefabricated container consists only of the one-piece wirebound blank with special intermediate cleats that serve as interior blocking to keep bombs from shifting. The 25-pound cast and machined practice bombs with attached fins are packaged two to a box in only two man-minutes.

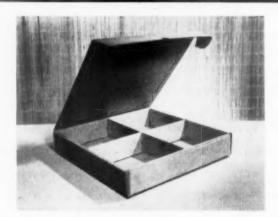
CIRCLE NO. 421 ON INQUIRY CARD-PAGE 17



Label Printing Machine Releases 10 Men for Other Work

Increased orders for conduit fittings, lighting fixtures, etc., created a serious bottleneck in Appleton Electric Company's Chicago warehouse. A label printing system was adopted and has been given credit for a 100% speed-up in addressing of cartons as well as releasing 10 men for other handling work. A Weber label printing machine located at the dispatcher's desk is used to print and address the exact number of labels. The machine gives the dispatcher complete control over label production.

CIRCLE NO. 422 ON INQUIRY CARD-PAGE 17



Corrugated Container Replaces Metal for Tungsten Mix

A corrugated folder that replaces a metal can is enabling Electro Metallurgical Company to package twenty pounds of tungsten mix in granular form and then harden the material evenly into evenly sized blocks within the sealed container. The folder is constructed with interlocking partitions which form four cells into which the granular material is poured. The folder is sealed and passed through an electric furnace set at 300°F.

CIRCLE NO. 423 ON INQUIRY CARD-PAGE 17



Another STANLEY STEEL STRAPPLICATION* on the job

Don't *man-handle* products and lose money ... "UNI-TIE" and Save!

The more your products are handled manually, piece by piece, in packaging, storing, loading and unloading, the more chance for product damage. And "man-handling" takes longer and costs more than mechanical handling. This Syracuse company now "Uni-Ties" its precision castings to pallets with Stanley Steel Strapping, "eliminating the need for costly containers, cutting packaging time 50% and effecting important savings."

"Uni-Tieing" makes ONE unit out of many, making it possible to handle products by mechanical means from packaging to customer. Let the "Uni-Tieing" Method help you.

WRITE FOR YOUR FREE COPY of the "Stanley Strapplication Manual of Packaging and Shipping" to STANLEY STEEL STRAPPING, Division of The Stanley Works, Dept. E, 876 Lake Street, New Britain, Conn.

*The system-atic way to solve specific packaging and shipping problems



INSURE IT-SECURE IT WITH STANLEY STEEL STRAPPING

AMERICA BUILDS BETTER AND LIVES BETTER WITH STANLEY



This famous trademark distinguishes over 20,000 quality products of The Stanley Works—hand and electric tools - drapery, industrial and builders hardware - door controls - aluminum windows - metal parts - coatings - steel and steel strapping—wade in 24 Stanley plants in the United States, Canada, England and Germany





Crate Weight Reduced; \$10,000 Saved Every Year

Sherman Products, Inc., reports that it is saving about \$10,000 a year in addition to freight economies from lower tare weights as a result of converting its packing-for-shipment to the use of wirebound crates. Economies reported include up to 35 man-minutes per unit for packing, up to 116 lbs. in shipping container tare weight, and over-all packing cost savings of 27%.

CIRCLE NO. 424 ON INQUIRY CARD-PAGE 17



Unitizing Shipments Reduces Parcel Post Costs by 33%

Shipping is a big factor in the top manufacturing field. The Steven Manufacturing Company has been able to save from 25% to 33% in parcel post fees by unitizing parcels rather than mailing them individually. An improved method of utilizing parcel post regulations was worked out with the help of the Permacel Tape Corporation. Permacel developed a 34" glass reinforced paper tape which made unitizing feasible.

CIRCLE NO. 425 ON INQUIRY CARD-PAGE 17



Air Procurement Service Keeps Payroll Costs Down

A. O. Smith Corporation keeps down its payroll costs by using Emery's Air Procurement Service on a planned weekly schedule. The plant in Granite City has no payroll department. Records and time cards are sent to the general offices in Milwaukee for tabulation and payment. These records are picked up Monday night and delivered to Milwaukee early Tuesday morning. The records are then processed and the payroll made up. On Thursday, Emery picks up the records and pay checks and delivers them for distribution on Friday.

CIRCLE NO. 426 ON INQUIRY CARD-PAGE 17

For More Information Circle No. 946 on Inquiry Card—Page 17→



Union Value Analysis -- a tested, scientific method of reducing your packaging cost pyramid.

UVA

SAVES PACKAGING BUYERS MILLIONS ANNUALLY



UVA . . . Union Value Analysis . . . is a new technique for improving your packaging efficiency while helping lower your long-term costs.

Look at the symbol to your left. The small portion above the horizontal represents the original cost, or purchase price, of your package, packaging materials and equipment. The underneath part, your hidden costs . . . the dollars you pay for maintenance, loading, filling and handling time, shipping costs, storage space, product damage losses and other operating charges.

Both kinds of costs are important in any packaging decision. Together they add up to the *true measure* of your packaging investment.

Union Value Analysis, a systematic exploration of all opportunities for packaging economies and added efficiencies, helps you get the maximum return for that investment . . . something which may be entirely different from the original (or surface) cost of your packaging.

UVA is available as part of Union's regular service to all packaging buyers. You do not have to be a Union customer to request a preliminary survey. The case histories described on these pages are just a few examples of what can happen when you do.

MULTIWALL BAGS

UVA takes 40,000 lbs. off a packer's shoulders Lifting 20 tons of filled bags a day is a lot of labor. It's inefficient, too, as a large chemicals producer learned recently during a Union Value Analysis of his Multiwall operation.

The UVA solution: a new system for sliding bags from check weigh scale to bag flattener. This relieved packer fatigue of manually lifting a 40,000 lb. bag load each day. Another UVA tip: redesign style, proportion, construction of existing Multiwalls. Annual savings: \$1,400 to \$8,000 a year for every 450 M of various bag sizes used.

Multiwall costs cut \$255 per carload through UVA Union Value Analysis recently helped a Pennsylvania packer reduce his Multiwali costs—by \$255 per carload—and also increase the overall effectiveness of his bag.

Savings came through UVA recommendations for: (1) completely new bag design. This increased merchandising value of the Multiwalls. (2) reduced bag construction. Lowering the basis weight enabled customer to cut his Multiwall bag costs. And (3) using Union's new "Diamond-O" closure which resulted in greater operating efficiency and trimmer package.

Chemical processor lowers packaging overhead \$37,584 through UVA 66 minus 27 = 37,584. Loose logic? Not for a large agricultural chemicals firm whose Multiwall packaging and materials handling system was recently reviewed and revised through a Union Value Analysis.

The 27 represents a reduction in the company's labor force from an original staff of 66. The 37,584 . . . seasonal dollar savings achieved following adoption of UVA recommendations. The complete changeover was made using existing equipment and buildings with only slight modifications. Capital outlay was paid back in 13 months.

UVA "weightreducing" idea saves packer \$30,000 a year The problem was "overweight", a Union Value Analysis revealed after a survey of a large Southern packer's Multiwall operation. Solution: drop the basis weight of each bag 10 pounds. Result: Annual savings of \$30,000.

Specifically, the UVA showed that the 2/ply 40-lb. and 2/ply 50-lb. Multi-walls the firm was using could be replaced by lighter, less expensive 3/40 and 1/50's. Another bag of 4/40 construction... by 3/50 Multiwalls. By reducing basis weight 10 lbs., costs were cut \$250 per carload. Number of cars used a year: 120.



UNION BAG-CAMP PAPER CORPORATION

233 Broadway, New York 7, N. Y.

Corrugated Boxes, Multiwall Bags, Standard Grocery Bags & Sacks, Specially Bags, Scutan Weatherproof Paper, Boneycomb Inner Packing, Gummed Tapes, Unbleached Kraft Paper, Bleached and Specially Papers



How much could UVA packaging



UVA reveals ways to save money with low-cost paper bags

INDUSTRIAL BAGS



BEARINGS

Roller bearings are placed on revolving wheel "spokes", then slipped off easily into paper bags lined with waxed kraft. New bags replace chipboard tubes . . . cost less, take less storage, speed filling and closing.



STEEL

Sometimes called a "shot bag." Used in the production of high grade carbon. steel. Filled with flux powder consisting of manganese and other ingredients. Thrown, contents and all, into steel furnace, adding necessary ingredients to molten steel.



FITTINGS

This bag packs 25 to 100 copper fittings at a time, quickly, economically. Bags are tin-tied for easy, safe closure. Attractively printed "copper" colors promote, quickly identify, merchandise contents.



NAILS AND SIDING

Perfect "piggy-back" package. Small bags, top right, are first filled with face nails, then stapled closed. Next, 57 3" x 12" strips of asbestos-cement siding are inserted in long, narrow bag. One filled bag of nails is placed on top and unit stapled.



FURNITURE

Folding aluminum chairs and chaise longues are individually placed in bags, then in corrugated cartons, Bags also are used to cover parts of stack chairs. Help reduce damage, prevent scratching in shipment.



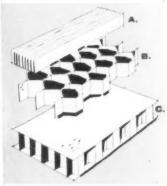
SOFT GOODS

Faster to fold and to wrap. Towels are hand folded, mechanically compressed, pushed into bag by plunger. Bag has hole punched in bottom to allow air to escape. Label covers hole after bag is filled. Keeps dust out, identifies contents by size, stock, number, etc.

ideas like these save you?

HONEYCOMB

HONEYCOMB is available



- B. Expanded and cured pieces and sheets.
 Expanded and faced with kraft paper.
- UVA recommendation:

Cuts damage, packing time Union HONEYCOMB is kraft paper, with or without resin impregnation.

with or without resin impregnation, expanded into a large volume, low density cell structure. Used as a sandwich core material, it forms exceptionally tough, high cushioning inner packing.

On a square foot basis, HONEYCOMB is one of the most economical inner packing materials known. Ounce for ounce, it is one of the strongest.

The excellent buffer action of this UVA-developed cell structure is helping companies save thousands of dollars in reduced damage claims. Its light weight lowers shipping expense. And it is easy to handle, helps speed packing.

Perhaps Union Honeycomb can provide opportunities for major cost reductions in your packaging operation. Write for complete information.



UVA helps furniture packer cut costs \$20,000 a year

A large eastern furniture company recently began using Union HONEY-COMB core for interior packing of framed mirrors. The company has since saved \$20,000 in container costs alone! The new double-faced HONEYCOMB interior pieces, made of expanded kraft paper, have doubled packaging production. The company now packs an average of ten mirrors per hour. Before the changeover, it was five.

Thanks to the extra-cushioning protection of HONEYCOMB core, there has been only one damage claim in a year. Also, HONEYCOMB's remarkable strength plus light weight saved 20 to 26 lbs. per container.

MULTIWALL PACKAGING MACHINERY



UVA-developed bagger saves 40% on labor— 20% on packing time

A major milling company recently adopted Union's new I & C Bagger, developed through UVA, for all its corn meal, mash and scratch feed packaging. The economies which resulted—40% labor savings, 20% reduced packing time—are one more example in the increased efficiency this new bagger has made possible to scores of manufacturers.

The model UB-101-A, best for feed packaging, has a weighing accuracy that holds plus-or-minus variation to 2 ounces! Closing operator can see the double-faced dial scale at all times. Model weighs units from 10 to 100 lbs. Operator can change weight units quickly with a switch that is within close reach. He can also check weigh the feed on the machine simply by releasing another convenient switch so that the hopper is filled without discharging and exact weight is checked on dial scale.



UNION BAG-CAMP PAPER CORPORATION

233 Broadway, New York 7, N. Y.

Corrugated Boxes, Multiwall Bags, Standard Grocery Bags & Sacks, Specialty Bags, Scutan Weatherproof Paper, Honeycomb Inner Packing, Gummed Tapes, Unbleached Kraft Paper, Bleached and Specialty Papers



UVA gives you greater packaging utility per ut

CORRUGATED BOXES



UVA box design cuts labor, packaging costs 10%

Better protection for upholstery leather and split leather shipments was the problem facing a Newark, New Jersey company. A package wrap of combined chipboard and paper provided little or no cushioning. Many damage claims resulted.

The UVA solution: a specially designed corrugated box container made of double wall board. The new package is of full telescope construction. Damage claims are now almost negligible . . . packaging and labor costs have been reduced 10%. Also, the box's re-use value produced additional savings for the company.



UVA results in \$15,000-a-year container savings

A leading business machines' manufacturer changed his export package, based on UVA recommendations. Savings: \$15,000 annually in container costs alone!

Prior to the packaging switch the company used wooden boxes for their shipments. The new package, developed through UVA, consists of two heavy duty corrugated boxes, one fitting inside the other. Outer box is made of weatherproof corrugated board.

In addition to saving on container costs, the new package has more than halved packaging time. Damage has practically been eliminated.

PACKAGING PROBLEMS LIKE THESE SOLVED BY UVA



GARDEN HOSE.

This low-cost corrugated container proved the perfect packaging solution for this normally difficultto-handle product. In addition to providing excellent stability to the hose roll, the container sets up fast, makes unit easy to carry, doubles as floor merchandiser.



TEXTILE YARNS.

This attractive, practical container, another UVA recommendation, features special corrugated platforms and dividers. Unit makes maximum use of space-keeps yarn rolls rigid and completely protected. Box's light weight. saves shipping expense.

UVA-DEVELOPED CONTAINER LOWERS SHIPPING WEIGHT, SPEEDS PACKING

Container costs were substantially reduced when a large electrical company began using a new, UVA-developed box for their circuit breakers.

Rigid containers with wooden bases had previously been used. The new package, a heavy-duty corrugated box, was made by Union as a result of a Union Value Analysis. It is made of double wall board and has interlocking top and bottom corrugated caps.

The new package offers many advantages in addition to lower cost. It reduces product shipping weight. It makes for easier, safer packing. It offers superior dust and moisture protection for the circuit breaker.



UNION BAG-CAMP PAPER CORPORATION

233 Broadway, New York 7, N. Y.

Corrugated Boxes, Multiwall Bags, Standard Grocery Bags & Sacks, Specialty Bags, Scutan Weatherproof Paper, Honeycomb Inner Packing, Gummed Tapes, Unbleached Kraft Paper, Bleached and Specialty Papers

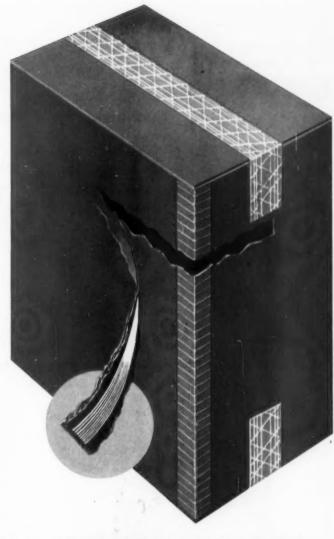
RIP CARTONS OPEN FAST

AVISCO rayon high-strength yarns put cords of extra toughness in all kinds of tapes for quick protective sealing, slash-free opening.

Here's one way high-strength Avisco rayon helps save money and man-hours. Carton opening time is reduced to seconds, and damage to merchandise due to using sharp carton-opening tools is completely eliminated.

Tear tapes, corner stay tapes, and reinforced sealing tapes are just a few of thousands of ways Avisco rayon is used to add strength and tear resistance to packaging materials.

Here are several other examples of how the flexibility, shock resistance and utility of Avisco rayon reinforcements add strength and quality to products at an economical price:



Multi-wall bags for agricultural and chemical products

Case covers and liners · Wrappings for shipping and storing
Wrappings for sheet metals to protect highly finished surfaces
Backing for stucco · Temporary tarpaulins

Whatever your reinforcement requirements, American Viscose can supply fibers and yarns for every application. Our extensive technical facilities and experience are geared to help solve every conceivable design and production problem. Just tell us about your needs on the coupon, and send it in. You'll hear from us immediately.



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Name

Name of company

Address

Reinforcement requirements





Shipping in Corrugated Boxes Cuts Packaging Costs 50%

Narragansett Gymnasium Equipment Co., Centralia, Mo., switched from wooden to corrugated boxes in shipping heavy, metal bases used to support volleyball nets. It has reduced shipping weight 5 lb per package and cut packaging costs more than 50%. With adjustable interior packing, the two-piece corrugated shipper, produced by Hinde & Dauch, holds either two or three metal base units.

CIRCLE NO. 427 ON INQUIRY CARD-PAGE 17



Tape Reduces Strapping Time 662/3%

C. V. Hill Company, Inc. found that by substituting pressure sensitive strapping tape for metal strapping, packing time could be cut. Large cartons took one-half hour to seal with metal strapping while the same job was accomplished in ten minutes with pressure sensitive tape. The Hill Company found also that a number of parts previously packed in crates could be packed in cardboard cartons, strapped with tape. Use of cartons rather than crates resulted in a 50% saving.

CIRCLE NO. 428 ON INQUIRY CARD-PAGE 17



Corrugated Boxes Save \$15,000

A prominent office appliance firm in the East has built up a profitable market abroad for its calculating, adding and other business machines. Foreign shipments have to be carefully packaged and the company formerly used wooden boxes for the purpose. Union Bag-Camp Paper Co. suggested using two heavy duty corrugated boxes instead. The inner box, made of 350# test double wall board, is the package used for domestic shipments. This is placed in another box, made of weatherproof corrugated board (V3C). It saves \$15,000 on container costs alone.

CIRCLE NO. 429 ON INQUIRY CARD-PAGE 17



Henry Rosenfeld, President of Henry Rosenfeld, Inc., asks:

"Which model has the most dates?"

"One of these models has kept only one date - the other, over 50,000!

"On the left is the one-date model – the original, hand-made, custom-designed 'Henry Rosenfeld dress #5026.' Its only date was our Spring showing.

"On the right is a copy. The dress caught on, became a 'hot number' and we had to deliver it — fast! Thousands of copies were shipped to hundreds of stores — without missing one date — thanks to Air Express.

Buyers all over the country, knowing how much we ship

via Air Express, planned their promotional programs and sales with no fear of a hitch.

"Using Air Express, we regularly meet the fierce competition of the fashion business. And we save money doing it!

"For example, a typical 15-lb. shipment from New York to Richmond, Va., costs \$3.23 with Air Express — \$3.82 less than any other complete air service.

"What's more, Air Express uses radio-controlled trucks to rush our shipments to and from airports—and, whenever necessary, a private teletype system to trace shipments instantly."





30 YEARS OF GETTING THERE FIRST via U.S. Scheduled Airlines

CALL AIR EXPRESS . . . division of RAILWAY EXPRESS AGENCY

For More Information Circle No. 948 on Inquiry Card-Page 17





New Container Is Lighter, Safer, and Cheaper

General Electric formerly packaged circuit breakers in rigid containers. Each unit was screwed to a wooden base, and placed in the container with an inner pack. GE now uses, at a big saving, a heavy duty corrugated box made by Union Bag-Camp Paper Corp. The circuit breaker, on its base, is placed atop the bottom cap of the box. The sleeve is fitted over it and a corrugated inner pack inserted. The top cap is put in position and the box is closed with steel strapping. In addition to lower cost, the box provides reduced shipping weight.

CIRCLE NO. 430 ON INQUIRY CARD-PAGE 17



Container Eliminates One Packaging Operation, Cuts Costs

McGraw Edison formerly packaged toasters in individual corrugated containers with inner packing—then over packed, three to a master container, to guarantee safe shipment and good package appearance on arrival. A new container designed by Inland Container Corp. completely eliminates the need for a master container. The secret is in the use of Inland's Air-Pak as a sleeve for the toaster. This is a special 3%" flute material that literally floats each toaster.

CIRCLE NO. 431 ON INQUIRY CARD-PAGE 17



Costs and Packing Time Reduced with Wirebound Box

Only 10 man-minutes are needed to pack 283 lb. bulky pick-up attachments made by Innes Co. for forage harvesters. The wirebound box used to pack the bulky unit weighs 43.4 lbs.—less than 14% of the gross shipping weight. Over-all packing time and costs were drastically cut by the adoption of wirebound boxes, which eliminated the need for heavy nailed-in wooden blocking. Instead of the blocking, Innes uses four pieces of prefabricated and easily placed special wooden interior packing.

CIRCLE NO. 432 ON INQUIRY CARD-PAGE 17



Look! No Hands!



A steady stream of packages get strapped—and nobody's there. These Signode machines do it by themselves. Not all plants are ready for such automation, but these machines are ready and are running in several plants. They are one of many Signode ways to make your product cost less to handle, store, ship and receive. For high strength at low cost, you can't beat steel strapping to hold things together or in place. It will pay you to see your Signode representative. No obligation. Just write:

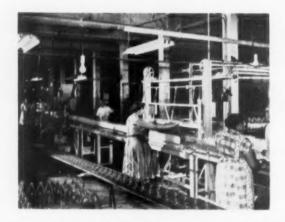
SIGNODE STEEL STRAPPING CO.

2676 N. Western Avenue, Chicago 47, Illinois

Offices Coast to Coast. Foreign Subsidiaries and Distributors World-wide. In Canada: Canadian Steel Strapping Co., Ltd., Montreal • Toronto

For More Information Circle No. 949 on Inquiry Card-Page 17





New Filling Machine Doubles Ammonia Output

Parsons Ammonia Company has installed an automatic filling machine that enables them to fill close to 3,000 cases of ammonia per day. Three girls are required to operate the entire line. The previous machine used, filled only 1,800 cases a day—and required the services of 16 girls. The machinery, designed and made by the MRM Company has a complete recirculation system that prevents any loss of product and guarantees clean and perfect high-speed filling of ammonia.

CIRCLE NO. 433 ON INQUIRY CARD-PAGE 17



Packaging, Labor Costs Go Down in Switch to Corrugated

Pettibone Mulliken Corp. reports a 30% saving in packaging and labor costs by switching from wirebound wood containers to corrugated boxes for shipping replacement parts for materials handling equipment. Sealed with steel straps or paper tape, the new boxes are easier to open, and to re-use until emptied. They also guard against entry of rain or snow, which would rust the metal parts. Logotype printed on the box gives the manufacturer strong product identity. The boxes are made by Stone Container Corp.

CIRCLE NO. 434 ON INQUIRY CARD-PAGE 17



Wirebound Box Eliminates Manual Handling of Ingots

All manual handling of ingots at the smelter of W. J. Bullock—and at its customer's plants—has been eliminated by packaging them in wirebound pallet boxes. This simplifies storage, deters pilferage, and prevents mixing of ingots of different metallurgical composition. Bullock place-packs by hand 88 25-lb ingots—2200 lbs—per bin, yet stacks packed bins three-high in storage. Cost of container and packing is more than offset by economies in handling, storage, and pilferage prevention.

CIRCLE NO. 435 ON INQUIRY CARD-PAGE 17

On your purchase orders...

SHIP VIA D. C. All the way

nuson PURCHASING AGENT

P.O.No. 926)

pecify DE

for fastest, Safest delivery and to avoid production delays!

> **NOW...**NON-STOP, STRAIGHT-THRU 2-MAN SLEEPER CAB SERVICE"

> > Coast-to-Coast!

TERMINALS:

NEW YORK CITY ALBANY SYRACUSE BUFFALO

CLEVELAND CHICAGO ST. LOUIS

KANSAS CITY DENVER COLORADO SPRINGS PUEBLO PHOENIX LOS ANGELES SEATTLE

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*With Trailer Pool
**Trailer Pool Only

SALT LAKE CITY WASHINGTON, D. C. SOUTH BEND DES MOINES PHILADELPHIA TACOMA

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**DE KALB, ILL. **ROCK ISLAND, ILL. **ROCKFORD, ILL.

**TOLEDO

THE ONLY COAST TO COAST CARRIER

TRUCKING CO..ING.

WHEREVER YOU BUY... SPECIFY

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AIR FREIGHT!



The only direct, one-airline service between 60 key U.S. cities and 21 world trading centers in Europe, Africa and Asia!

TWA Air Freight assures fast, door-to-door service. Cuts packing and handling costs; loss from breakage, pilferage. Use it regularly! And reduce costly warehousing . . . gain greater control over lowered inventories. Less investment in merchandise means money in the bank . . . money you can put to work!

Analyze your procurement costs in relation to these money-saving factors. Then economize with TWA Air Freight . . . whenever you buy! Call your nearest TWA office today. Or write: TWA Air Freight, Dept. P5-7, Trans World Airlines, 380 Madison Avenue, New York 17.

SPECIFY TWA AIR FREIGHT!

All TWA flights carry Air Mail, Air Freight and - in the U. S. A. - Air Express





For More Information Circle No. 951 on Inquiry Card-Page 17

Corrugated Container Lowers Costs

The Simonds Worden White Company uses Gaylord Container Drumpaks to ship grinding wheels. Simonds finds that the Drumpaks require 75% less storage space before assembly than containers previously used. Sawdust, used for cushioning material in former packages, is no longer needed. Cost of the Drumpak is less than that of previous container. In addition, gross weight of the loaded Drumpak is 30% less than the same product as formerly packed.

Circle No. 436 on Inquiry Card-Page 17

New Package Speeds Production, Boosts Sales



Merkel's Inc., New York meat packers, were interested in a new package design to coordinate with new automatic packaging equipment. The Printon Corporation designed, and developed a new product out of Saran to solve the packaging problem. Printon used a unique technique of rotogravure printing on the inside of one Saran film, laminated with a specially developed adhesive to another clear Saran film. The package gives double strength protection. The printing cannot be affected by oils, solvents, fats or surface scratching. Merkel reports a sharp increase in both impulse and repeat sales of the product since introducing the new package. Circle No. 437 on Inquiry Card-Page 17

For More Information Circle No. 952 on Inquiry Card—Page 17→

PURCHASING



whatever the job ...

PERMACEL TAPES

a Johnson Johnson company



Cost Cutting Catalogs

Address by Machine

"How to Streamline Your Shipment Addressing for Speed and Economy" is a 16-page guide to better addressing techniques. Included are seven system ideas now used by leading companies in industry for addressing labels, tags, and cartons.

Weber Marking Systems

Circle No. 438 on Inquiry Card—Page 17

Automatic Bag Sealing

A 4-page bulletin describes a high speed automatic machine for sealing bags made of polyethylene and pliofilm. Sealing speeds vary from 250 to 650 lineal inches/minute. Three models of machines are described; the Model S (Poly), the Model D (Poly) and the Model F (Poly).

Amsco Packaging Machinery, Inc.

Circle No. 439 on Inquiry Card-Page 17

Everything in Steel Strapping

Catalog SS-9 is designed to tell the story of a complete steel strapping system. In its 16-pages are buying data on the strapping itself, strapping seals, strapping tools and machines and other packaging materials. Complete information for specifying and ordering is included.

Stanley Steel Strapping

Circle No. 440 on Inquiry Card-Page 17

Getting Economical Packaging

Packaging cost reduction—from original package design to final product shipment—is the subject of recently published booklet. Titled "How to Ship More Economically in Corrugated Boxes," the booklet presents pertinent cost saving case histories.

Hinde & Dauch

Circle No. 441 on Inquiry Card-Page 17

Guide to Box Closure Methods

A new brochure on box closure methods is specially prepared for users of fibreboard boxes and packages. It's designed to help evaluate current methods used so as to effect economies in the closure of fibreboard boxes. There's a complete discussion of various closure methods which brings out pros and cons of each method.

Acme Steel Company

Circle No. 442 on Inquiry Card-Page 17

High Speed Labeling

A fully automatic labeling machine is the subject of a 4-page bulletin. The machine will handle containers ranging from fractional ounces to gallons and label sizes from a "postage stamp" up to $5\frac{1}{2}$ " x 7". Model GIR-75 handles all type of containers at speeds ranging from 30-75 containers per minute.

MPM Company, Inc.

Circle No. 443 on Inquiry Card-Page 17

Labels of All Types

A 24-page, 3-color catalog brightly illustrates a complete line of labels. Also listed are office forms, addressing materials, and label dispensers. In stock are such standard labels as "Glass, Handle With Care," "Do Not Fold or Bend," etc.

Ever Ready Label Corporation

Circle No. 444 on Inquiry Card-Page 17

Label Shipments Properly

A new guide to modern shipping label design has just been published. Titled "Just What You're Looking For," it illustrates 16 new shipping label designs. Each design is available in one or two colors and in 4 different sizes to suit any need. Also included is a selection of labels with standard instruction.

Allen Hollender Co.

Circle No. 445 on Inquiry Card-Page 17

Tape That's Strong

Uses and advantages of strapping tape with 250-lb. tensile strength are covered in an 8-page, 2-color illustrated booklet. The pressure tape has vinyl backing and can be used for packaging a wide variety of products.

Johns-Manville

Circle No. 446 on Inquiry Card-Page 17

The Latest in Plastic Containers

Polyethylene is probably the hottest material in the container field. A 4-page bulletin describes how containers molded of this material provide permanent packaging at low cost. Polyethylene containers are said to cost less than leather or plastic boxes and to look better than sheet steel.

Werner Manufacturing Co.

Circle No. 447 on Inquiry Card-Page 17



"INTEGRATION" An Extra Assurance of Quality in **Brainard Steel Strapping**

The word integration has a special meaning in the industrial vocabulary. An integrated company has come to mean one that gives something extra in quality, delivery, and performance.

As a division of Sharon Steel, Brainard can be sure that the steel used for strapping has been developed to meet their own exacting standards. From mine to finished product, Brainard Steel Strapping has that extra quality that can come only from an integrated industry.

The Brainard strapping line includes over 378 items to provide you the finest modern strapping facilities. Brainard trained sales engineers are on call in every major city to help you with your strapping problems.

Brainard Steel Strapping

SHARONSTEEL

Brainard Steel Division, Sharon Steel Corporation Griswold Street, Warren, Ohio

For More Information Circle No. 953 on Inquiry Card-Page 17



Ask our man!



day in and day out. And B&O

care . . . on fast, convenient

to ship via B&O Time-Saver.

"babies" your LCL with utmost

schedules. That's why you're smart

For More Information Circle No. 954 on Inquiry Card-Page 17

Cellophane Packaging Eliminates Breakage



California Lima Bean Growers Association has adopted a new Avisco cellophane package for its one pound consumer units. Greater package strength and improved appearance are two major advantages of the double-wall cellophane bag over the single-wall bag previously used. Cost of the new bag is approximately the same as for the old, which used 450 gauge cellophane. However, breakage is virtually eliminated because of double-wall strength. Packages are formed and filled at 36 per minute on a Simplex-O-Matic machine.

Circle No. 448 on Inquiry Card-Page 17

Change in Packing Motors Cuts Costs



Major economies from minor expenditures are enjoyed by Fairbanks, Morse & Co. at its Freeport, Illinois plant by packing electric motors in wirebound crates. Formerly shipped simply on heavy wooden skids and covered with protective bags, they are now packed in wirebound crates. Stacking is now possible. Fork lift trucks can handle readyto-ship units two or more at a time. By adopting crates, the company eliminated the cost of the skids, which, in many cases, cost more than the crates that replaced

Circle No. 449 on Inquiry Card-Page 17

WWW. USS Gerrard AUTOMATIC STRAPPING MACHINE

Fully Tested, Tried and Proven



Where automation is important to your packaging and bundling problems, the USS Gerrard Model 12 Automatic Round Steel Strapping Machine is the answer to your needs. This machine has thoroughly proved its efficiency and trouble-free operation. Here, briefly, are some of its many advantages:

LOW COST—This is one of the lowest-cost autometic strapping machines on the market today.

COMPACT-Requires only $11\,1/_2$ sq. ft. of floor space. Table height, 31''. Weight (approx.), 1500 lbs.

SPEED-Up to 24 ties per minute.

TWO SIZES—Either machine will handle packages as small as 8" wide by 2" high. The larger will handle packages as large as 26" wide by 20" high.

EASY TO OPERATE—Utilizes USS Gerrard Round Steel Strapping from 14 through 18 gauge. Easy to thread and operate.

LOW MAINTENANCE—One-shot, built-in lubrication system and compact, rugged, simple construction mean minimum service and maintenance.

TENSION—Can be predetermined, and when set is uniformly maintained on all packages regardless of size or weight.

SINGLE POWER SOURCE—All functions are mechanically controlled and interlocked. Simply plug in and run.

PACKAGES which vary in size and shape can be strapped without adjustment to machine.

COMPRESSION DEVICE for pre-compressing packages or bundles can be supplied as optional equipment.

QUIET OPERATION—Fully engineered to eliminate noise and vibration.

For more complete details, contact your USS Gerrard sales representative. Also mail coupon for folder and the Gerrard Blue Book of Packaging. This contains full information on all USS Gerrard Machines and round and flat strapping.

GERRARD STEEL STRAPPING DIVISION, UNITED STATES STEEL CORPORATION
GENERAL DEFICES: CHICAGO, ILLINOIS



UNITED STATES STEEL

USE THIS COUPON----

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Please send me folder on the Automatic Strapping Machine and the 36-page GERRARD Blue Book of Packaging. No obligation.

Name

Company

Address

City

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Have Salesman Call

Special Box Design Reduces Damage to Almost Nothing



Wirebound packing permits economies in packing, handling, and warehousing, plus full protection to 1800 lbs. of easily marred aluminum foil, A wirebound box packed with six 300-pound rolls of foil, the multiple pack cut over-all packing costs between one-third and one-half; it elim-

inated damage to the foil during packing, shipping, and unpacking, and saved considerable factory space in storing containers for use.

Circle No. 450 on Inquiry Card-Page 17

Grating Platform Improves Handling



A modern railroad car float, recently launched by the Baltimore & Ohio R. R., has a bridge deck grating platform 260 feet long by 12 feet wide. Older floats used 10

feet wide solid wooden platforms which deteriorated easily. Greater width permits loading or discharge of cargo by modern types of mechanized equipment, such as tractors and fork lifts. In addition, grating platform may be removed and replaced by a third set of tracks without disturbing either of the adjoining tracks and without additional strengthening of the hull.

Circle No. 451 on Inquiry Card-Page 17

FOR FURTHER
INFORMATION ON
ALL PRODUCTS
MENTIONED IN THIS
ISSUE
PLEASE USE INQUIRY CARD
PAGE 17



For More Information Circle No. 956 on Inquiry Card-Page 17

Bands For Every Purpose



ONE PIECE — SEAMLESS
Outstretch — Outlast all others

We'll make bands for your special needs. All Plymouth Standard Bands meet Federal Specifications. NATIONALLY DISTRIBUTED — AT YOUR REGULAR SUPPLIERS.

PLYMOUTH RUBBER CO., INC. Since 1896

CANTON, MASSACHUSETTS

For More Information Circle No. 957 on Inquiry Card-Page 17

Been using that new gummed tape we ordered, Mac?

> Sure have! And you know, I think it's about the best we ever used around here!

Want me to order it for you again?

Yeah, I do. Let's see, I think it's called "Safetex"!

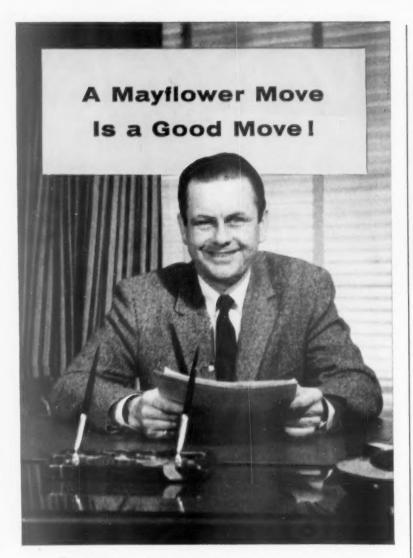


The easiest way to *make* money is by *saving* money. You can do just that by ordering Safetex for your Shipping Department. Safetex cuts application costs, increases shipping room efficiency.

SAFETEX SUPERSTANDARD GUMMED TAPE



CENTRAL PAPER COMPANY . MENASHA, WISCONSIN



Whenever you have personnel to move for your company, you'll find they like Mayflower Service. Top executives, salesmen, engineers, research people... whatever their position... report complete satisfaction with Mayflower. For example, here's what a recent shipper, whom we moved from Covington, Ohio to Yuma, Arizona had to say:

"Not one thing was lost, broken or damaged. I was very satisfied in the moving of my household goods, and I shall recommend your company."

Next time you have personnel to move, call Mayflower, won't you? It's a mighty good move!

AERO MAYFLOWER TRANSIT COMPANY, INC. . INDIANAPOLIS



AMERICA'S FINEST LONG-DISTANCE MOVING SERVICE
For More Information Circle No. 959 on Inquiry Cord—Page 17

Disposable Containers Save Space, Cut Costs



Krim-Ko Corporation uses a new-style container for chocolate syrup—a corrugated box with polyethylene bag liner, to trim costs to its dairy customers and provide easier handling. Dairies that choose the new container over conventional milk cans, drums and pails save 3-8% in syrup costs. The new one-trip container eliminates washing, sterilizing and shipping re-use containers. Corners make it easily grasped, and the square shape saves up to 35% in floor space.

Circle No. 452 on Inquiry Card-Page 17

Food Processor Saves with Aluminum-Foil Corrugated Box

Cut-up fresh tray-pack chickens are packed in a new aluminum foil-laminated corrugated box which controls temperature without ice, thus reducing shipping costs. The insulated box, developed by Aluminum Corporation of America and Stone Container Corporation is shown being packed by Rockingham Poultry Marketing Cooperative. Highly reflective foil surface of the Stone Sta-Temp container holds down inside temperature when shipments are temporarily out of refrigeration. The new container eliminates the cost of ice and saves weight and space.

Circle No. 453 on Inquiry Card-Page 17

What is the <u>exclusive ingredient</u> that makes Continental steel containers tops for quality and sales appeal?





Eastern Division: 100 E. 42nd St., New York 17 * Central Division: 135 So. La Salle St., Chicago 3 * Pacific Division: Russ Building, San Francisco 4

SEAL IT RIGHT SEAL IT TIGHT



G U M M E D SEALING TAPE

APPLIES SPEEDILY OR GRIPS TIGHTLY OPERMANENTLY



TOP TAPE PERFORMANCE ALWAYS

ATLANTIC'S ON-TO-STA GUMMED SEALING TAPES AND GUMMED SPECIALTIES SERVE EVERY SEALING NEED

DISTRIBUTED THROUGH PAPER MERCHANTS

ATLANTIC GUMMED PAPER CORPORATION

1 MAIN STREET . BROOKLYN 1, N. Y.

BRANCH OFFICES: PHILADELPHIA • PITTSBURGH CHICAGO • BUFFALO • BOSTON • HAVANA For More Information Circle No. 961 on Inquiry Card—Page 17

Polyethylene Filter Bags Outlast Conventional Type



Filter bags, woven of monofilaments made from Bakelite polyethylene, have lasted almost seven times longer than conventional filter bags on disk-type filter machines used by the metallurgical industry. In one eastern metal treatment plant, polyethylene filter bags have been in operation for about 600 hours without appreciable signs of wear. In this application, conventional filter bags lasted about 80 hours. The use of polyethylene filter bags also provided considerable savings in the filter downtime.

Circle No. 454 on Inquiry Card—Page 17

Lift Truck Attachments Lower Unloading Time 92%



The combination of wirebound crates for water heaters and the use of industrial power trucks with finger-lift attachments re(Please turn to page 458)



If you have a preduct that is hard to label; if you need a removable label—or a Point of Sale piece that will definitely get posted, specify KLEEN-STIK! KLEEN-STIK makes sure your printed pieces will stick—tight—anywhere. Go on fast, without water, glue, tacks or tape. Every KLEEN-STIK piece pays its way—on glass, plastic, metal, polished surfaces, flexible packaging films and the usual paper surfaces. Stays until purposely removed. Your best buy—by the pioneers in the pressure-sensitive adhesive field.

Add KLEEN-STIK "sell" to:
PRODUCT LABELS
(hand or machine dispensed)
IDENTIFICATION SPOTS
GUARANTEES, TRADEMARKS
INSTRUCTIONS, DIAGRAMS
PACKAGING CLOSURES
DISPLAYS, SIGNS
OUTDOOR SIGNS

We do NO printing... your regular printer or lithographer can supply you with KLEEN-STIK to make your printing serve where no other advertising can get, stay, or tell-and-sell. Ask him for details and samples. Or write us.

KLEEN-STIK Products, Inc.

Pianeers in Pressure-Sensitives for Advertising and Labeling 7300 W. Wilson Ave. © Chicago 31, III.

For More Information Circle No. 962 on Inquiry Card—Page 17



Enjoy complete peace-of-mind when you move! Insist on American Red Ball, the only van line in America to offer you the famous Certificate of Performance . . . a written guarantee of the safe arrival of all your possessions! With this exclusive "plus service" feature, every item receives extra-careful attention from pickup through delivery. Call American Red Ball for a perfect move . . . remember, it's Certified in writing!

Excellent Storage facilities everywhere.

FOR A FREE WRITTEN ESTIMATE CONTACT YOUR LOCAL AMERICAN RED BALL AGENT—LISTED IN THE YELLOW PAGES OF YOUR DIRECTORY.

RED MOVE RED MOVE BALL WAY

AMERICAN RED BALL

TRANSIT COMPANY, INC.

1000 Illinois Bidg., Dept. P-5, Indianapolis, Indiana

For More Information Circle No. 963 on Inquiry Card-Page 17

"Bright idea"



Your company name and message show up better on brighter, smoother H&D Corabrite corrugated boxes. Improving product identification is always a bright idea.

Better see H&D.



HINDE & DAUCH

Subsidiary of West Virginia Pulp and Paper Company

AUTHORITY ON PACKAGING · SANDUSKY, OHIO 14 FACTORIES · 42 SALES OFFICES (Continued from page 456) sulted in reducing car-loading time 92%. Where it previously took 10 man-hours, it now takes 45 minutes. Warehousing capacity is more than doubled; investment in pallets eliminated; and damage from falling heaters ended.

Circle No. 456 on Inquiry Card-Page 17

Change in Shipping Drums Saves \$19,000 Yearly



Laclede-Christy Works, Refractories Division, H. K. Porter Company, Inc., ships more than 50,000 tons of refractory specialties a year. By changing from a mauser type drum to a lug type drum, the company has achieved annual savings of over \$19,000.

Internally, the finish of the drum was improved by a rust inhibitor coating at no increase in price.

The switch in type of drum allowed complete package re-design. Drums are now attractively lithographed in two colors. Products and company are readily identified and customer acceptance has proved favorable.

Circle No. 457 on Inquiry Card-Page 17

SEE PAGE 17
FOR
INQUIRY CARD

YOU CAN RESERVE AIR FREIGHT SPACE FLIGHT IN THIS TIMETABLE



On United, you can reserve Air Freight space the same way you reserve passenger space—and on any of 900 daily flights!

The same United timetable you use to get places quickly and comfortably can be used to schedule large or small Air Freight shipments (from pounds to tons).

Air Freight moves on all United flights. And United will reserve space for your shipment on whatever flight you select.

This is called "Reserved Air Freight." It's United's way of handling Air Freight shipments with all the speed, frequency and schedule dependability of regular passenger service. In fact, United will even pick up and deliver your shipment.

To guarantee the space you need on the flight you want, you simply call United's local Air Freight office three hours or more before flight time. They'll clear and hold the space for you.

No other airline does so much to make shipping so fast, so easy, so dependable. And at rates you'll find pleasantly surprising.

Door-to-door service

SHIP FAST...SHIP SURE...SHIP EASY

For service, information, or free Air Freight booklet, call the nearest United Air Lines Representative or write Cargo Sales Division, United Air Lines, 36 South Wabash Avenue, Chicago 3, Illinois.

Examples of United's Air Freight rates

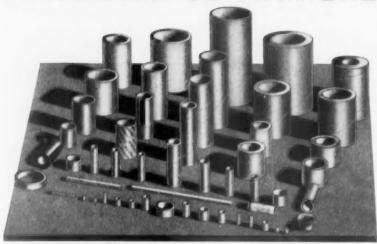
						DE	e t	00	pounds*
CHICAGO to CLEVELAND	*			*	*				\$4.78
NEW YORK to DETROIT			,	,					5.90
DENVER to OMAHA		*			*	×			6.42
SEATTLE to LOS ANGELES .					*				9.80
PHILADELPHIA to PORTLAND									
SAN FRANCISCO to BOSTON									27.00

*These are the rates for many commodities. They are often lower for larger ship-ments. Rates shown are for information only, are subject to change, and do not include the 3% federal tax on domestic shipments.





CLEVELAND CONTAINER



PRODUCES TUBING TO MEET EVERY NEED!

Tubing of every kind, type and size, in diameters up to 24" . . . in any length . . . in light or heavy wall . . . manufactured from chipboard, kraft, jute, fish paper, etc., as required.

Plain or printed . . . wax impregnated . . . lined with special greaseproof or anticorrosive papers. Also investigate Cleveland Container tubing for electrical uses.

Shipments made promptly from the plant nearest you.







SALES OFFICES

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Why pay more? For quality products . . . call CLEVELAND!

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ALL-FIBRE CANS • COMBINATION METAL AND PAPER CANS • SPIRALLY WOUND TUBES AND CORES FOR ALL PURPOSES

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JAMESBURG, N. J

CLEVELAND CONTAINER CANADA, LTD. Plants & Sales Offices: TORONTO AND PRESCOTT, ONT.

For More Information Circle No. 966 on Inquiry Card-Page 17

Refractories Shipped in Corrugated; \$18,000 Saved



Shipping refractory specialties in cartons at Laclede-Christy Works, Refractories Division, H. K. Porter Company, Inc., required purchase of more than 150,-000 pressed fibre cartons per year.

After exhaustive tests, it was found that shipping needs could be met with a corrugated carton -with no sacrifice in quality. The resultant savings exceeded \$18,000 annually. In addition, package value and product identification improved tremendously.

Circle No. 458 on Inquiry Card-Page 17

Steel Strapping Lowers Cost of Shipping Stampings



Metal stampings shipped in crates or barrels by a New York concern were hard to handleand were often damaged. The company decided to use the Stanley Steel Strapping "Uni-Tie" system. Metal stampings are now strapped to a single pallet-as many as 150. Depending on the shape and size of a stamping, the method of stacking and strapping the load varies. Regardless of the method used, the company has saved, on the average, four hours of truck loading time and approximately \$13.40 on each truck loaded.

Circle No. 459 on Inquiry Card-Page 17



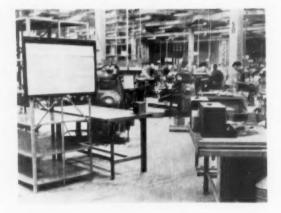




Case Histories
of
Value Analysis
in

Office Equiment





Boeing Saves \$300,000 a Year With Kardex Pocket Panels

Remington Rand Kardex pocket panels within the actual production area have helped gain closer control over operations and have saved nearly \$300,000 a year in clerical costs for Boeing Airplane Company. The system shows the inspector the status of each operation on the line and makes job cards available to the crew at all times. Sched-U-Graph boards are also used for control of machine loading. These, too, give information instantaneously because of the visible indexing feature.

CIRCLE NO. 460 ON INQUIRY CARD-PAGE 17



25% Saving for Supply Company By Use of Combination Form

Non-stock items were a headache to Wiley-Hughes Supply Company. A ten-part combination invoice-purchase order enabled the company to cut typings from three to one—a 25% savings in direct clerical labor. The invoice and the purchase order are typed at one time. The invoice is held in file until the non-stock items arrive, at which time the invoice is mailed. The forms were designed and printed by Uarco Incorporated.

CIRCLE NO. 461 ON INQUIRY CARD-PAGE 17



\$60,000 Annual Saving with Invoicing-Shipping Procedure

Inclusion of the Sten-C-Labl in an invoicing-shipping procedure, devised with the help of The Standard Register Company, plays an effective part in the estimated \$60,000 annual saving being realized by D. L. Clark Company of Pittsburgh. Eight-part continuous forms, consisting of invoicing, statistical, and shipping papers, are prepared by running punched tabulating cards through an accounting machine. A second run-through of the cards prints customers' names and addresses on Sten-C-Labls.

CIRCLE NO. 462 ON INQUIRY CARD-PAGE 17

One Girl Gives All Answers From 27,000 Personnel Records

Capacity in excess of 30,000 cards plus pushbutton control for locating specific records quickly have saved space and time for the Caterpillar Tractor Company of Peoria, Illinois since the company installed a Remington Rand Conve-Filer. The operator works from a sitting position, locates, draws and posts all records without moving. One girl, wearing a telephone headset, can handle all inquiries regarding personnel files for 27,600 employees.

CIRCLE NO. 463 ON INQUIRY CARD-PAGE 17



Aircraft Company Saves by Using Tape-Operated Composing Machines

Bell Aircraft Corporation installed a battery of Friden Justowriter automatic tape-operated composing machines on which copy can be set and automatically justified, on paper plates or on sheet stock for photo offset reproduction. Since this operation has been in effect in the production of publications for military and commercial use, it is estimated that Bell has saved 70% of its previous typesetting cost. One galley of typing of about 90 lines of nine words per line takes about 20 minutes.

CIRCLE NO. 464 ON INQUIRY CARD-PAGE 17



3-in-1 Form Saves Public Utility \$7,000 a Year

Adopting a Standard Register-designed form that provides for all customer accounting needs with a single writing, has helped Kansas Power and Light Company make a saving of approximately \$7,000 a year. Prepared on an accounting machine from decks of punched tabulating cards, the continuous form is really a three-in-one form, printed on card stock. It consists of a ledger record card for branch accounts receivable; bill ready for mailing as a postcard; and billing transmittal card.

CIRCLE NO. 465 ON INQUIRY CARD-PAGE 17







Distributor Eliminates Errors in Order-Billing Procedure

The experience of West-Ward, Inc., national distributor of pharmaceutical products, indicated that most druggists failed to make duplicate copies of orders sent to them with resulting confusion in their record-keeping. By using the Copease Duplex Photocopier they are able to furnish each customer with a copy of his original order along with the invoice for his order. This helps the pharmacist remember what he ordered and what deliveries can be expected. It eliminates duplication in ordering and provides a permanent record.

CIRCLE NO. 466 ON INQUIRY CARD-PAGE 17



\$22,500 a Year Saved With Xerography Reproduction

American Mutual Liability Company is saving \$22,500 a year by using xerography in the preparation of thousands of offset paper masters from which multiple copies are run off on an offset duplicator. Office and policyholder forms are reproduced by xerography. Copies of correspondence, news releases, reports of all kinds, training and procedure manuals, instruction and miscellaneous memos are also reproduced. Besides the actual monetary savings, the improved speed of communications is even more gratifying.

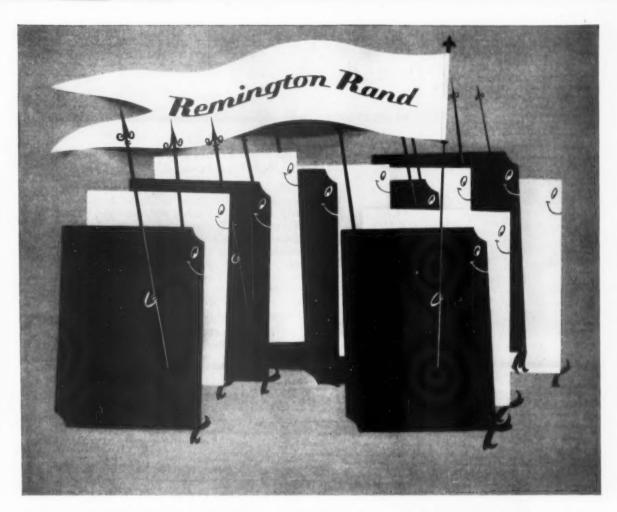
CIRCLE NO. 467 ON INQUIRY CARD-PAGE 17



Company Saves \$33,104 by Reducing Size of Engineering Drawings

Chance Vought Aircraft, Inc. cut the consumption of blue print paper by 62% (which amounts to a saving of \$33,104) in one year with a Peerless Neoflow Reducing Camera. Previously, all engineering drawing releases were blue printed actual size. Between 42 and 50 copies were required. By using the Neoflow Camera at a reduction of 2:1, half-size copies of these drawings are obtained, which means an area reduction of 75%. Any type of original vellum, tracing cloth, transparency, Vandyke, Ozalid, etc. can be processed.

CIRCLE NO. 468 ON INQUIRY CARD-PAGE 17



THE "QUIET REVOLUTION" IN CARBON PAPER

... and what it means to you!

Until recently the carbon paper industry tried to get blacker writing impressions by softening existing carbon coating formulas. Unfortunately, (1) copies smudged easily, (2) letters like "a" and "e" blurred and closed in on deeper copies, and (3) the carbon paper wore out quickly because too much coating was transferred with each blow of the type bars.

The Remington Rand Laboratory of Advanced Research answered this problem—and literally brought about a "quiet revolution" in carbon

paper. Newly developed waxes, dyes, and toners were put to work to clear up the problems created by "softening." Result? Typists everywhere can now have carbon paper that writes darker, lasts longer, won't smudge fingers or copies, and gives up to 15 copies at one typing. BEAUTYRITE® Carbon Paper is the culmination of this research. Try some now, and see how it can bring new efficiency to your office. For free samples write to Remington Rand, Room 1540, 315 Fourth Avenue, New York 10, N. Y.

Remington Rand

DIVISION OF SPERRY RAND CORPORATION

For More Information Circle No. 967 on Inquiry Card-Page 17





Combining Operations on Accounting Machine Saves \$3,000 a Year

A designer and manufacturer of food store equipment effected an estimated annual savings of \$3,000 by using an Underwood Sunsstrand Model E accounting machine. Operators simultaneously post accounts receivable statements and ledger plus a breakdown by item per salesman's commission. The machine automatically provides positive line proof of posting on accounts receivable records and salesmen's territory records as well as an automatic accumulation of debit or credit postings.

CIRCLE NO. 469 ON INQUIRY CARD-PAGE 17



Copying Machine Saves \$6,480 a Year

By using Remington Rand Dexigraph, the Illinois National Casualty Company saves as much as \$540 a month in a single application—copying experience cards to be sent to underwriters. A project which required eight "certified true copies" of documents in a sixty-two page court transcript cost the company only \$49.60 as against the \$322.40 it would have cost through a court reporter. The company also reports saving \$90.52 in one month on the cost of 124 film negatives for new offset plates in letterhead size.

CIRCLE NO. 470 ON INQUIRY CARD-PAGE 17



Cost of Posting Machine Fully Recovered Within a Year

By using an Underwood Sunstrand posting machine an insurance agency reduced monthly salary expenses by \$125.00 and monthly stationery cost by \$25.00, for an annual saving of \$1800—more than the cost of the machine itself. Customer's statement and ledger are automatically balanced daily on the posting machine and a complete journal listing is provided as an automatic by-product of the posting operation. A daily bank deposit slip, in duplicate, plus automatic proof of accuracy of posting and distribution is provided.

CIRCLE NO. 471 ON INQUIRY CARD-PAGE 17



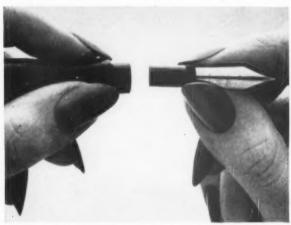
Why the American Express Company uses "the desk pen you fill just twice a year"



Always ready to write - The Esterbrook "444" never runs dry because the spill-proof base holds 40 times more ink than any desk fountain pen . . . a six months' supply. And the capillary point fills instantly every time you return it to socket . . . writes 500 words at a dip.



32 points - Only Esterbrook offers a complete choice of points for every writing job. Travel and Travelers Cheque customers in American Express offices around the world use Esterbrook "444" sets-precision-made to write easily, neatly, with almost no pressure.



Easy point replacement - At American Express every "444" set stays in constant working order. If a point is damaged, it can be replaced in a second for 60¢.* The pen is as good as new again. All in all, the "444" is the world's most economical, nuisance-free desk set.

The Esterbrook



Choose the right point for every writing job - from Esterbrook's 32

carbon copies fine writing general writing Signatur

Prominent Users of Strathmore Letterhead Papers: No. 128 of a Series

One of the most famous packages in the world... the original black and gold Lanvin bottle,





LANVIN PARFUMS, on

Quality

makes a subtle point

The look of its letterhead is a clue to a company's character. Reflecting the Lanvin precept that quality—like fragrance—is to be *discovered*, not announced, the classic Lanvin letterhead is as subtle as its own fine perfume.

Strathmore papers never shout their superiority, rather their quality and dignity add an intangible sincerity to a letterhead. It is no accident that an impressive number of important firms use Strathmore. It would be no mistake if yours did the same.

Lanvin-Parfums, Inc. has been promising quality and giving it for more than a quarter of a century...ever since the famed French couturiere, Mme. Jeanne Lanvin, created a series of fragrances for her own use and that of her customers. Her original My Sin, Arpege, Scandal, Rumeur and Pretexte are beloved by women in every part of the world as superb examples of "the best perfume Paris has to offer."

STRATHMORE LETTERHEAD PAPERS: STRATHMORE PARCHMENT, STRATHMORE SCRIPT, THISTLEMARK BOND, ALEXANDRA BRILLIANT, BAY PATH BOND, STRATHMORE WRITING, STRATHMORE BOND, ENVELOPES TO MATCH CONVERTED BY OLD COLONY ENVELOPE CO.

STRATHMORE THIN PAPERS: STRATHMORE PARCHMENT ORION SKIN, STRATHMORE BOND ONION SKIN, STRATHMORE BOND AIR MAIL STRATHMORE BOND TRANSMASTER, REPLICA

Better Papers are made with Cotton Fiber

STRATHMORE

Makers of Fine Papers

STRATHMORE PAPER COMPANY, WEST SPRINGFIELD, MASSACHUSETTS For More Information Circle No. 969 on Inquiry Card—Page 17

Craftsmen's Knife Fills Office Need



Many companies using spirittype master stencils for quantity duplicating work are employing the X-acto knife, well known by hobbyists and craftsmen, to make corrections on the stencils. The knives handle like pencils and come in sizes to fit every grip. They are fitted with removable blades which can be replaced quickly and inexpensively.

Circle No. 472 on Inquiry Card-Page 17

File Space Cut By 33-1/3% With Open Shelves



Filing space was reduced by one-third when the Foxboro Company installed a Remington Rand Variadex filing system on open shelves. Filing efficiency and speed increased. Variadex, an expandable alphabetical system of indexing, anticipates future expansion at minimum cost since no file guides need be discarded. Since there are no drawers, noise has been also eliminated.

Circle No. 473 on Inquiry Card-Page 17

No more pounding, punching or jamming . . .

ELECTRIC STAPLING IS HERE!



NEW "Swingline" 66" staples neatly, accurately, speedily.

CUTS OFFICE COST TWO WAYS! The new electric "SWINGLINE 66" slashes labor costs . . . saves on staples, too. Operators work more efficiently without fatigue for the "SWINGLINE 66" does 99% of the work. Just the Feather Touch of a finger tip staples up to 40 pages together electrically . . . a perfect clinch every time. And SWINGLINE's exclusive "open channel" means easy loading of up to 210 staples at once. Why not ask your stationery supplier for a free 10-day trial?

"FEATHER TOUCH" only ***29**

including Rubber Gasket at stationers everywhere. (Foot pedal model available at \$35.75)

Swingline INC. LONG ISLAND CITY 1, NEW YORK

of staplers for home and office

For full information write:

World's largest manufacturers







*Slightly higher in the West

Tet "SO" POCKET STAPLER .

27 OFFICE STAPLER

For More Information Circle No. 970 on Inquiry Card-Page 17





Photocopying Saves \$15,000

At a major lock and hardware manufacturing firm, it required an eight-girl team to process an average of 200 orders each day. Introduction of photocopying techniques enabled the firm to reduce the processing staff to four and, at the same time, increased accuracy of the work. At present one girl operates a Verifax Copier, full-time on an assembly-line basis, turning out work that does not have to be proofread. Net annual savings made possible by the introduction of the photocopying equipment are estimated by the company to run between \$14,000 and \$20,000.

CIRCLE NO. 474 ON INQUIRY CARD-PAGE 17



Dictaphones Instead of Secretaries Save \$30,000 Yearly

A leading electrical appliance firm replaced secretaries with Dictaphone Corp.'s Telecord system and is now saving \$30,000 a year as a result. The new method uses the plant's regular telephone system, standard dial telephones (modified by the substitution of a handset with a start-stop pushbutton), six Dictaphone recorders in a central transcription room, and typists. With Telecord, anyone wishing to dictate simply dials digit 7 for a free recorder. Correction, playback, end of letter, etc., are all handled by dialing different digits.

CIRCLE NO. 475 ON INQUIRY CARD-PAGE 17



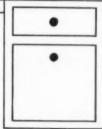
New Form Helps Firm Save \$80,000 in Three Years

A four-part Standard Register Zipset form has been an important factor in the realization of an estimated saving of \$80,000 over a three-year period for the Mustang Tractor and Equipment Company. Parts orders are entered by hand and the Zipset provides all the copies necessary for its operations as well as a means for reproducing as many invoices as desired. Following the order writing, the four parts are routed through inventory control, parts department, stockroom, and billing.

CIRCLE NO. 476 ON INQUIRY CARD-PAGE 17







on every desk

BOSTON CHAMPION

PORTABLE PENCIL SHARPENER

4 DECORATIVE COLORS-GREEN, BLUE, SAND-TONE, GRAY

Saves its initial cost in a few work days by better office efficiency. A morale booster that will pay for itself many times over before its useful life has hardly begun.

- easy feed it—hold it—turn it operation with automatic feed
- no messy fallout of shavings
- designed for modern office furniture—no screws, won't mar desks (rubber feet)
- 25% more cutting edges.





KS

"JACK-OF-ALL-TRADES"

PERFORMANCE—unequalled for rugged strength producing clean, sharp points without waste.

IMPROVEMENTS -- new, position lock on 8-size pencil guide.

CLEANLINESS—no messy fallout—nickel-plated steel receptacle stays put.

STRENGTH-stand has "bridge-like design" with a steel rack.

EFFICIENT — Boston Speed Cutters, with 25% more cutting edges, consistently produce clean sharp points.

Complete information and free comprehensive sharpener report available on request—booklet T.

C. HOWARD HUNT



PEN CO. Camden I, N.J.

Camden 1, N.J.

Also mfrs. of SPEEDBALL pens and products



Silk Star is made from tightly woven, finest silk. The sheer, smooth fabric permits crystal-clear impressions that mirror the face of the type.

Silk Star is consistently strong. It will withstand the severe cutting action of type ...of constant pounding day after day and still give sharp, legible and even typing results. Silk Star is extra-long for extra service. It means fewer ribbon changes and longer service from each ribbon.

Try them now and see the difference.



*To prove it, we'll gladly send you a free sample. Please write on your company letterhead stating make and model of your typewriter, and type style. (Elite or Pica)

Make it clear

...you want WEBSTER'S

AT LEADING STATIONERS EVERYWHERE

F. S. Webster Co., 7 Amherst St., Cambridge 42, Mass.
For More Information Circle No. 972 on Inquiry Card—Page 17

Clerical Time Reduced 84% In Duplicating Airbills



By using Remington Rand Transcopy to make duplicate of airbills, American Airlines, Inc. has slashed costs. On the basis of 90 duplicate bills which cost, on the average, \$7.38, this manual operation required about four and one-half hours. Now the 90 copies can be made in 45 minutes at a labor cost of only \$1.23. Including the cost of photocopy paper, they save \$1.47 and three and three-quarter hours on a routine 90-unit copy job.

Circle No. 477 on Inquiry Card-Page 17

Streamlines Order Processing

When the order service department of Westinghouse's Small Motors Div., Lima Ohio, moved to a new office, it set up an integrated data processing system which has speeded its order handling markedly. Batteries of Programmatic Flexowriters and a Bell System teletypewriter hookup are new employed to prepare invoices, create byproduct punched paper tapes, and transmit and receive all information controlling shipments and order fulfillment. As a result of the move to more appropriate quarters and the establishment of the IDP system, the department is now processing 300 orders daily in a matter of hours. Time required to process a customer's order has been reduced from 60% to 80%.

Circle No. 478 on Inquiry Card-Page 17



NORMAN ROCKWELL: "In an illustration...just as in a letter...paper is basic, It's expressive. If it is carefully selected it can contribute much to the total effect."—Mr. Rockwell's human interest illustrations have long been family favorites throughout America.

Better papers are made with Cotton Fiber*

Through the years papers made of cotton fiber have been symbols of prestige. And for good reason. This special fiber is responsible for the exceptional beauty, strength and permanence these papers possess. The unique processes and equipment used in making cotton fiber papers represent one of the proudest achievements of the paper-making art. Don't compromise quality or performance. Choose cotton fiber papers. They add so much to effectiveness . . . so little to cost.

YOUR SUPPLIER KNOWS . . . why papers made of cotton fiber (25% minimum to 100% in the best grades) perform better in a variety of uses. Ask him

mum to 100% in the best grades) perform better in a variety of uses. Ask him about cotton fiber business and social stationery, indexes, ledgers, onion skin and drawing, tracing, blue print and other papers.



*LOOK FOR "COTTON" OR "RAG" IN THE WATERMARK OR LABEL

For More Information Circle No. 973 on Inquiry Card-Page 17





Speedier Transcriptions Save Money

A leading manufacturing firm wanted a faster method of recording dictation for its engineering staff of 650. Dictaphone Corporation was called in and found that the average engineer created 65 lines of stenographic work each day. One hundred pieces of individual dictating and transcribing equipment was installed to serve 300-400 engineers. The Dictaphone Telecord system of central dictation was put in to take care of another 300 men.

CIRCLE NO. 479 ON INQUIRY CARD-PAGE 17



Clerical Costs Down 50% With Visirecord

Formerly it took 29 clerks using a tray-type file to run the complicated service parts inventory control system used in the service repair shop of Eclipse-Pioneer Div. of Bendix Aviation Corp. After VISIrecord was installed, the number of clerks was reduced to 14. The VISI-record file cards show current balance on hand and on order, current lead time, quarterly recap of past usage, and reorder points and quantities arranged to permit analysis at a glance.

CIRCLE NO. 480 ON INQUIRY CARD-PAGE 17



One Operator Can Post 300 Labor Tickets Daily

A production cost accounting system so fast and efficient that a single accounting machine operator can post over 3000 labor tickets a day has been developed at the Jervis Corp. By keeping a running analysis of both direct and indirect labor costs daily, the firm is able to accumulate cost information while gaining data on complete labor distribution for the general books. Key to the system is use of three highly automatic Burroughs Sensimatic accounting machines.

CIRCLE NO. 481 ON INQUIRY CARD-PAGE 17



ONE OF THE MANY ATTRACTIVE, modern housing units planned and built by the Centex Construction Company.



FAST GROWTH of this company is the talk of the industry.



COMBINED OPERATION. Customers' accounts, company records, and payroll are posted on this National "31".



ROBERT G. ROWE, Treasurer of the above

"Our National System saves us \$7,740 a year... pays for itself every 11 months!"

-Centex Construction Company, Dallas, Texas

"In 1950 we built 300 homes, in 1955 over 4000-with this tremendous exover 4000—with this tremendous expansion we had to have an efficient accounting system!" writes Robert G. Rowe, Treasurer of the Centex Construction Co. "Our National System is all of that and more. It saves us over \$7,740 a year!
"We use a National 'Class 31' for all our payroll and Lebas Distribu-

all our payroll and Labor Distribution accounting. The speed and efficiency of this arrangement has enabled us to eliminate the cost of an outside Service Bureau, a saving of \$335 a month, and we realize a savings in personnel costs of \$145 each month.

"Our National System keeps our records always up-to-date and gives us better information in less time. This makes auditing easier and less expensive—another significant cost reduction. Taking all these savings together, our National System pays for itself every 11 months!'

Treasurer, Centex Construction Company, Inc.

Robert HRowe -

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Here is an opportunity to cut costs and

increase profits in your business operation.

A National System will quickly pay for

itself through savings, then continue return-

ing these savings as extra yearly profit.

a trained systems analyst. He's listed in the yellow pages of your phone book.

Call your nearby National representative-

THE NATIONAL CASH REGISTER COMPANY, Dayton 9, Ohio

989 OFFICES IN 94 COUNTRIES

For More Information Circle No. 974 on Inquiry Card-Page 17

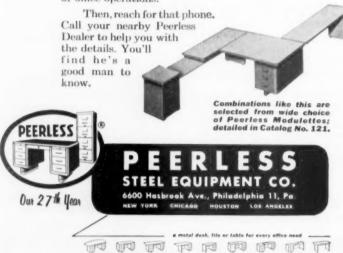
How to be an Office Architect



Here's how to affect cost reductions in your office, the easy way. Simply write for your free "office floor-plan kit" and a copy of Peerless Catalog #121.

Catalog #121 completely details Peerless Modular Office Furniture...illustrates every style of Peerless Modulettes.

You put them to work like this. Simply select your required styles of Peerless Modulettes. Then, turn to the above kit. Cut out the equivalent units on the printed outlines. Position them on the floor plan scale which is included. Make a few changes here and there... and you've saved valuable office space, reduced costs, and the result is a more efficient flow of office operations.



For More Information Circle No. 975 on Inquiry Card-Page 17

Autopositive Masters Save \$2,000



With construction of the \$40 million Industrias Kaiser Argentina Cordoba Plant an administrative problem developed. Bulk of the manufacturing equipment for the new Kaiser-Willys plant was obtained from surplus facilities in Detroit and Toledo. However, engineering and design supervision for the Argentine automotive line was handled out of Toledo. Therefore, original drawings had to retained in the home office. Solution to this problem was use of a special photographic intermediate material - Kodagraph Autopositive Paper Translucent. Turned out on standard blueprint machine, the reproducibles, which can be changed, in effect, became engineering masters which the Argentine staff could modify as market conditions dictated. Result: equipment and material costs were amortized and a \$2000 bonus in operational savings was realized.

Circle No. 482 on Inquiry Card-Page 17

You Need Only One Card
to Request Additional
Information on Any
Item in This Issue
Use the Reader Service
Page 17

Value Analysis

of Office Equipment



Art Metal points the way to cost reduction in large and small offices



							_
CHECK	equipment	for	PER	CEC	ORM	AN	CE

- Is it functionally built and organized to make work output easy and fast?
- Is it tailored to individual job needs?
- Does it cut out waste motion?
- Does it assure all-day working comfort?

... for SPACE-SAVING DESIGN

- Does it reduce office floor space needs per worker?
 - Does it decrease the need for supplemental equipment?

... for CONSTRUCTION and STYLING

Does it reflect the highest standard of workmanship?

Does it create an office of outstanding appearance?

CHECK available PLANNING AID

- Is fully competent help available—free of charge—in providing a layout that will:
- conform to actual work-flow patterns
 minimize traffic between departments
- and also within each department
- assure privacy without sacrificing floor space permit easy rearrangement and expansion?

AS THIS CHECK LIST INDICATES, the value performance of office desks, chairs, files and related equipment is measured in greater work output through savings in time and effort, and reduced space requirements obtained without sacrificing appearance, comfort, or production. Through these tangible economies Art Metal offices frequently repay the entire outlay for new equipment within a year or two, and continue to return savings at the same rate for the life of the equipment. For maximum yield on your office floor space and payroll investment, check the adaptability and quality of Art Metal in the light of your needs. Your local representative is in the "Yellow Pages"—or write Art Metal Construction Company, Jamestown 8, New York.

FOR IDEAS YOU CAN USE, check any of the following, to be sent free on request:

- Things to be Done When You Move or Rearrange Your Office
- Correct Seating Chair Catalog
- Executive and General Office Desk Catalog

Catalog

- El-Unit Modular Office Catalog
- Postindex Visible Index File Catalog



...making offices finer for business since 1888

ORME COLINS

National sales and service through branches and dealers in more than 800 cities.

For More Information Circle No. 976 on Inquiry Card-Page 17





Municipality Cuts Tax Billing Time in Half

The treasurer of the city of New Rochelle faced a tough fiscal problem: how to handle a 10% increase in tax accounts in the shorter time allotted. Under the old method it took 14 days to compute 13,200 tax extensions and prepare tax bills. With Underwood Sundstrand tax billing machines it takes only eight days to compute and prepare 14,444 tax extensions and bills for the tax roll.

CIRCLE NO. 484 ON INQUIRY CARD-PAGE 17



Dictaphone Saves Traveler 150-200 Hours

Research director of the Timber Engineering Co. recently toured half a dozen European countries compiling extensive reports and analyses. He made arrangements so that at every point on his itinerary he would be able to use a Dictaphone Time-Master dictating machine. There was no extra charge for this service. The company official estimates that using dictaphones this way saved him from 150 to 200 hours.

CIRCLE NO. 485 ON INQUIRY CARD-PAGE 17



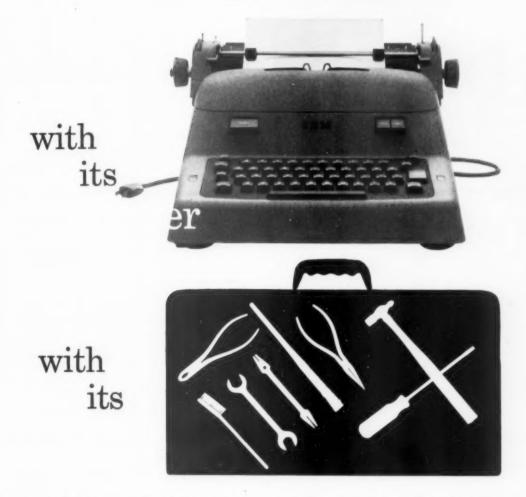
New System Outmodes Machine Bookkeeping

Williams, Manny, Stevens & Engstrom, Inc., recently put in Remington Rand's Simplified Unit Invoice Accounting Plan (SUIAP) and was able to do away with the machine book-keeping system previously used. SUIAP makes it possible to handle accounts receivable faster because of the visible indexing of the Kolect-A-Matic file pockets. The system is also more accurate because copying operations are eliminated. Control is better because all posting is up to date.

CIRCLE NO. 486 ON INQUIRY CARD-PAGE 17

Another reason why the IBM is your best electric typewriter buy:

IBM gives you the most performance



Because the IBM is the world's simplest electric in design and operation, it is the most dependable in performance. That's why, with the IBM, loss of valuable office time because of breakdown is kept to a minimum. In addition, the IBM helps turn out more and better typing in less time to help boost office efficiency.

Like anything mechanical, though, your IBM Electric will perform best when it receives expert care and servicing. And that's when you'll be doubly glad you chose IBM—because IBM's factory-trained Customer Engineers are noted for their prompt, efficient, courteous service. Also, IBM's dependable periodic inspection program helps keep maintenance costs to a minimum.

Remember, when you go IBM you get the finest and favorite electric typewriter—and the fastest, most efficient service!

ELECTRIC

-OUTSELL ALL OTHER ELECTRICS COMBINED!

For More Information Circle No. 977 on Inquiry Card-Page 17





60% Reduction in Clerical Staff; Stock Control Improved

The gun stock department of Winchester Repeating Arms Div. maintains part and sub-assembly stock records covering 45,000 items. A supervisor and four clerks kept the file in 50 heavy metal bound visible binders. Both management and personnel were dissatisfied with the system and VISIrecord Eye Level Units were installed. Now a supervisor and one clerk can do the same work that formerly required five people.

CIRCLE NO. 487 ON INQUIRY CARD-PAGE 17



Customer Records Prepared In Half a Day Instead of Five

Sales at White Meadows Petroleum, Inc., are primarily on a charge basis. This necessitates hundreds of entries to customer accounts daily and preparation of over a thousand accounts each month. Posting was formerly done on loose-leaf ledger sheets after media was pre-sorted. Now sales are posted on VISIrecord ledger cards making presorting unnecessary since any card among the thousands can be found within 3 seconds. Overall the process of preparing customer records has been cut from 5 days to half a day.

CIRCLE NO. 488 ON INQUIRY CARD-PAGE 17



Saves \$10,000 With Televoice

Crown, Cork & Seal is saving \$10,000 a year at its Baltimore office because of Thomas A. Edison Industries' Dial Televoice, a remote control system of dictation. The Televoice eliminates shorthand and permits executives and secretaries to get out written work faster and more easily. As a result substantial savings can be made in executive and secretarial time. Letters are returned for signature in a few hours—sooner if necessary. At Crown, Cork & Seal seven secretaries handle the dictation of 21 executives.

CIRCLE NO. 489 ON INQUIRY CARD-PAGE 17



Steady Dividends . . .

are paid by Cramer equipment, engineered to serve year after year with little or no maintenance and no thought of replacement. Here is a partial list of Cramer quality products, all reliable long-term investments for every department of your business:

CRAMER Posture Chairs

for every seated worker, from clerk to president... comfortable, easily adjusted, correctly designed; as practical and as luxurious as you please...

CRAMER Hi-Model Chairs

for every worker who "sits high"; designers, examiners, engineers, cashiers, clerks, draftsmen, etc....

CRAMER Production Chairs

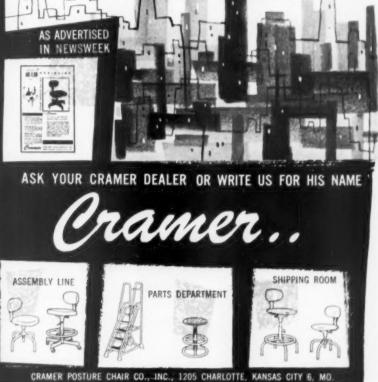
in high and low models, padded or unpadded, with easy adjustments and day-long comfort for production workers...

CRAMER Office Machine Stands

for the safe support of complex office machines, with rigid frames and sure-footed Safety Domes which "lock" securely to the floor...

CRAMER Stools and Stop-Steps

for safe and sure ups-and-downs in filing and parts departments, vaults, libraries, etc., many with Safety Domes to hold firm at the lightest step.



the Look for the pencil with the Blue Band! Buy famous Venus Velvet Pencils of fine in the handy dozen craftsmanship in or half gross package Pencils & Pens at your stationer.

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If address given is home address check here....

CARRYING TOO MUCH INVENTORY?

"Automating" your office procedures might provide the answer

Automation of office paperwork is now a practical means of controlling the problem of excessive inventory.

Every day—instead of every 2 weeks—you can have at your finger tips the figures showing "how much is where" . . . thus speeding deliveries, reducing shipping costs, tightening the whole sales operation.

Moore Business Forms (the largest company in its field) has developed procedures with Automated Data Processing—or ADP—which have proved of value to both small businesses and large.

ADP contributes importantly to profits...not only by cutting down on large inventories, but by speed-

ing work, reducing errors, making new employees unnecessary as business expands, improving employee morale.

Moore makes *no* machines—simply analyzes your problem . . . plans the proper ADP system for *your business* . . . designs and manufactures forms needed for maximum efficiency.

Call the Moore man (he's in the telephone directory). Over 300 offices and factories across the U. S., Canada, Mexico, Caribbean and Central America. Or write Moore Business Forms, Inc., at Niagara Falls, N. Y., Denton, Texas, or Emeryville, Cal. No obligation, of course.

MOORE BUSINESS FORMS





Cost Cutting Catalogs

Automatic Typing Cuts Costs

A new color folder illustrates the use of standardized paragraphs in routine correspondence. Best way to do routine typing is automatically. This new literature covers the many ways push button automatic typing can cut correspondence and typing costs.

American Automatic Typewriter Co. Circle No. 492 on Inquiry Card—Page 17

Balancing Stocks

The use of proper inventory control to balance stocks, reduce costs, and increase profits for all types of wholesaling operations is described in a new brochure. The basis for any good system is proper forms and procedures.

Remington Rand Circle No. 493 on Inquiry Card—Page 17

circle tro. 175 on inquity core .

Copy It by Machine

The advantages of Verifax copying machines are discussed in a recently published booklet. The machines are called "a new concept of automation for the modern office." Specific applications of how it's possible to make efficient use of copying machines are presented.

Eastman Kodak Co.

Circle No. 494 on Inquiry Card-Page 17

How to Save Office Space

The space-saving and overhead costs reduction possible with modular office furniture and removable partitions are fully covered in a newly published 12-page catalog. Suggested arrangements designed to maximize group efficiency are also included.

Peerless Steel Equipment Co. Circle No. 495 on Inquiry Card—Page 17

Keep Cool this Summer

"Dial Springtime Anytime" is a series of colorful new product folders which illustrate and contain specification information on a line of air conditioning products. Various sized applications are discussed.

> Airtemp Division Chrysler Corporation Circle No. 496 on Inquiry Cord—Page 17

Models Facilitate Planning

A line of industrial models is shown in a newly published 8-page booklet. It is pointed out that models are multi-purpose management tools that help reduce costs, increase efficiency, and expand markets. Illustrations show specific applications.

Knight Models, Inc.

Circle No. 497 on Inquiry Card-Page 17

Punched Tape Automates the Office

A colorful 24-page booklet, "The Punched Tape Story," shows in simple pictorial fashion how common language punched paper tape can be created by Flexowriter and then used to produce documents completely automatically at the rate of 100 words per minute.

Commercial Controls

Circle No. 498 on Inquiry Card-Page 17

Store Records the Easy Way

The widening scope of microfilm as an every-day office and record room work tool for active paperwork is detailed in a new 4-color 36-page brochure. The booklet, "New Horizons with Microfilm," describes the Filmsort system of using microfilm mounted in aperture cards or jackets.

Dexter Folding Company

Circle No. 499 on Inquiry Card-Page 17

The Latest in Reproduction Materials

A 20-page brochure describes a line of reproduction materials designed to meet individual reproduction requirements. With the materials, there's no need to invest in special equipment. Present equipment including direct-process or blueprint machine, etc. will do the job.

Eastman Kodak Co.

Circle No. 500 on Inquiry Card-Page 17

Why Phone Dictation?

A 16-page booklet titled "That New Fashioned Phone Dictation System" discusses the general advantages of using dictating machines and specific reasons why phone type dictation is particularly advantageous. Average cost savings of 47% are claimed.

Thomas A. Edison Inc.

Circle No. 501 on Inquiry Card-Page 17

Bookkeeping Machine Used in Fuel Requirements Forecast



When the Nassau Oil Company's list of accounts topped the 500 mark, management felt it was time to abandon manual accounting methods. The bookkeeping system was replaced by an Underwood Sundstrand ten-key keyboard. Now, during peak season, it takes just six hours to post accounts receivable. In summer less than three hours is required to do the necessary posting and prepare a daily master control. The machine has become an indispensable element in the company's Degree Day system which forecasts customer fuel requirements

Circle No. 502 on Inquiry Card-Page 17

Introduce New Model Elevator Files

Diebold, Incorporated of Dayton, Ohio, announced recently that a new model of the motorized Super Elevator File is now coming off the company's assembly lines. Designated the Super 63, this new model exceeds all functional advantages of its predecessor. Based on a new engineering concept, the Super 63 offers greater economy and efficiency in handling large volumes of records. Circle No. 503 on Inquiry Card—Page 17

FOR MORE
INFORMATION ON
PRODUCTS IN THIS
ISSUE USE INQUIRY CARD
PAGE 17





It's pretty tough to tell one of these
thoughtful little sleuths from another!

It's just as difficult to tell the
last duplicated copy from the first when you
use all-new Colitho Direct Image Paper Plates
and duplicating supplies.

The secret of this greater uniformity is that from plate to plate, box to box and shipment to shipment, Colitho Direct Image Paper Plates are ph Control-coated to closer tolerances than ever before. And Colitho Etch and Fountain Solution are specially formulated to bring out the exact same sparkling appearance from every plate.

Systems men and duplicator operators the country over are discovering this great new uniformity Colitho gives all their offset duplicating.

For the name of your nearest Colitho supplier, write: Columbia Ribbon & Carbon Mfg. Co., Inc., Glen Cove, New York.

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and electronics for the armed forces

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NAME	
ADDRESS	
CITY	STATE

For More Information Circle No. 982 on Inquiry Card-Page 17

Firm Reduces Form Cost by 84%



Reducing form costs from 15 cents to 2.4 cents per order has been a result of a change in invoice forms for The High Standard Manufacturing Company. A complicated 12-part order-invoice form was replaced with a 5-part handwritten continuous form, designed and supplied by The Standard Register Company. The form supplies invoice, duplicate, packing list, accounts receivable, and accounting copies. The original invoice also doubles as a mailing address medium through a window envelope attached to the parts bag.

Circle No. 504 on Inquiry Card-Page 17

Billing Machine Saves \$25,000

Handling the preparation of invoices for over 11/2 million order tags a year posed a tremendous problem for White Motor Co., Clevland. But by developing a machine accounting system around the use of Burroughs typewriter billing machines, the firm so simplified its record work that initial savings of \$25,000 a year have been realized. In addition to cutting costs, the new system is also more accurate and has helped raise employee morale. Circle No. 505 on Inquiry Card-Page 17

FOR MORE INFORMATION ON PRODUCTS IN THIS ISSUE PLEASE USE INQUIRY CARD-PAGE 17



Boy! The things that can happen in an office to make you swear!-Lost letters, mis-filed reports, mis-laid sheets, a file folder that spills its contents, papers blown about by drafts, knocked off desks, mis-handled or destroyed

Why pay penalties for such misfor-tunes? Do away with them! Start Accobinding! That's the binding-filing-safe-keeping system that keeps all related papers together as long as you want them.

Accobind Folders and Accopress Binders are available in sizes to fit all your filing needs - and they last for years. Ask your stationer to tell you more

ACCO PRODUCTS

A Division of NATSER Corporation OGDENSBURG, NEW YORK In Canada: Acco Canadian Co., Ltd., Toron

For More Information Circle No. 983 on Inquiry Card-Page 17



PRODUCTS FOR YOUR TV AND ART DEPT.

"STORYBOARD" PAD

The pad that has big 5 x 7 video panels that enable you to make man-sized TV visuals. Perforated video and audio segments on gray



No. 72C-Pad Size 14 x 17" (50 Sheets-4 Segments on Sheet) He. 72 E—Pecket Size 6% x 8% (50 Sheets—1 Segment on S

Tomkins TELEPAD

Most popular TV visual pad with 2½x4" video and audio panels on gray back-ground. Each panel perfo-



No. 72A-19 x 24"
(50 Sheets-12 panels on Sheet)

No. 728—Pecket Size 8 x 18"
(75 Sheets—4 panels on Sheet)

VIDEO PAPER

Sensational new paper for TV artists. Makes an ordin-ary pencil line vivid and colors just popl Write for sample.



FREE SAMPLES FOR THE ASKING!

Write on your letterhead fer 200-page catalog of art sup-plies. "An Encyclopedia of Artists Materials".



ARTHUR BROWN & BRO 2 West 46th St., New York 36

For More Information Circle No. on Inquiry Card-Page 17 PURCHASING



A point to remember

Apsco's Dandy Super-10, equipped with nylon pinion gears that reduce the noise factor almost 100% while adding immeasurably to the service life of this famous pencil sharpener model—is now available in your choice of five decorator colors!

Always specify-APSCO...



Apsco products inc.

For More Information Circle No. 985 on Inquiry Card-Page 17

GET MORE OUT OF PURCHASING

Put your own name on the mailing label that delivers PURCHASING Magazine . . . and see how much more you'll get out of the contents.

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General and Sales Offices: Warehouse and Branch Plant
HOLYOKE, MASSACHUSETTS MT. OLIVE, ILLINOIS

MANIFOLD PRINTERS SINCE 1888

For More Information Circle No. 986 on Inquiry Card-Page 17

Monroe Announces New Adding Machines



A newly designed series of ten-key adding machines in the 600 line has been announced by the Monroe Calculating Machine Company. Engineered for speed and accuracy, the machine features Monroe's open keyboard for fast entry of figures, "Velvet Touch" action for easier operation, and interlocks to prevent errors. Built with extra capacity, the 600 lists eleven and totals twelve, which makes it useful and practical for ordinary multiplication.

Circle No. 506 on Inquiry Card-Page 17

Printing Calculator Features High Speed

Clary Corporation, San Gabriel, California announces its new high speed printing calculator, with automatic multiplication, total transfer, decimal selection and other features. The ten-key machine applies short-cut methods to automatic multiplication and achieves extraordinary calculating speed. The exclusive decimal selector enables the operator to position decimals in any sequence desired.

Circle No. 507 on Inquiry Card-Page 17

New Photographic Material

Grant Photo Products, Inc., Cleveland, have introduced Presson, a photographic material for use in the graphic arts and industrial fields. After a photographic print has been made on Presson, the protective adhesive cover can be easily stripped off the back and the print is then pressed onto paper, cardboard, cloth, wood and even glass, where thumbtacks can't be used.

Circle No. 508 on Inquiry Card-Page 17

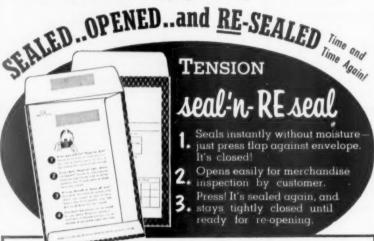
50-Line Automatic Internal Telephone Unit



A new 50-line automatic internal telephone system is announced by Tele-Norm Corporation, New York. This system, which eliminates all inter-office and plant calls from the outside switchboard and provides instant contact between persons or departments, has a capacity of 50 lines and 6 connecting links (permitting 6 simultaneous conversations). The equipment may be initially installed with fewer lines and connecting links and therefore is suited to expansion with increasing requirements.

Circle No. 509 on Inquiry Card-Page 17

A remarkable Packaging Envelope that can be



It's the ideal in envelopes wherever envelopes must be opened and closed several times. Perfect for self-service merchandising. Excellent for specialty goods. Eliminates any danger of condensation from sealing moisture. Speeds packaging and handling. Steps up sales. FREE samples. Write today!

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For More Information Circle No. 987 on Inquiry Card-Page 17

Carey's Versatility





Makes Printing History

Big run jobs have you on the run? Take a tip from leading firms and consult Carey. Round-the-clock operation, roll fed presses, inventory roll stock and sheeting equipment meet and service any quality demand at substantial savings. Why wait for deliveries when you can call Carey Press...ask for

Art Friedman, Sales Manager . CH 4-1000

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CAREY PRESS CORP. - 406 W. 31st ST. - N. Y. 1

For More Information Circle No. 988 on Inquiry Card—Page 17

PURCHASING

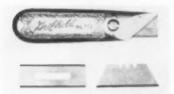
Unit Makes Instant Copies of Magazine Pages



A photocopy duplicator that will make instant copies of book or magazine pages as well as single sheets of paper was introduced recently by A. B. Dick Company, Chicago. The unit produces a sharp black on white copy of any original material, including pen or pencil writing, color pictures, and material printed on both sides of the page. Copies produced on a non-wrinkling paper which handles easily and is suitable for filing. A perfect copy of a handwritten ledger page can be obtained without removing the page from the book. The same machine will also prepare an offset duplicating plate. In less than two minutes, original material such as printed forms or line drawings can be transferred to a metal offset plate and the offset duplicating operation started. There is no need for darkrooms or film negatives.

Circle No. 490 on Inquiry Card-Page 17

Adjustable Office Knife



The Griffin Manufacturing Company, Rochester, New York has introduced a new office knife to its present line. A precision diecast handle, the blade is adjustable to any length. Five extra blades are stored in the handle for easy, quick change.

Circle No. 491 on Inquiry Card-Page 17



SAVE SPACE AND MONEY!



These smart new chairs are compact, comfortable and easy to keep clean. Both armchair and side chair models with either wall-saver legs to protect office and reception room walls or with space-saver legs to save every inch of floor space. Foam rubber back cushion and choice of rubberized hair or molded foam rubber-Nukraft seat give lasting comfort. Fine Harter steel construction, durable baked-on finishes and quality upholsteries assure long-lived good looks. Easy on the budget prices. For a free trial in your own office—without obligation—write for the name and address of your nearest Harter dealer.

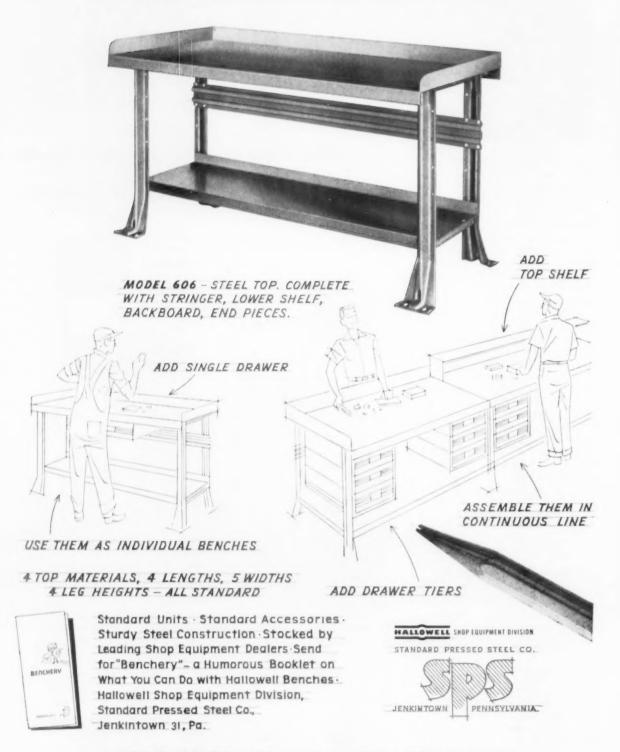
Harter Corporation, 529 Prairie Street, Sturgis, Michigan In Canada: Harter Metal Furniture, Ltd., Guelph, Ontario In Mexico: Muebles Briones, S. A., Mexico City, D. F.



STURGIS, MICHIGAN HARTER

For More Information Circle No. 989 on Inquiry Card-Page 17

HOW TO USE STANDARD HALLOWELL BENCHES AND ACCESSORIES IN PLANT MODERNIZATION



BENCHES (CABINET, WORK, UNIT) . STOOLS AND CHAIRS . SHOP DESKS . TOOL STANDS AND CABINETS . DRAWERS, DRAWER TIERS . STEEL CARTS . SHELVING



Case Histories
of
Value Analysis
in

MRO & Safety





Wrought Iron Pipe Grids End Snow Removal Costs

Annealed file blanks awaiting grinding are stored by the Nicholson File Co., Providence, R. I., in a shed 160 feet away from the manufacturing plant. The aisle between the two buildings often, in winter, piled up deep snow. Until removed, production would be held up as materials handling trucks could not negotiate the aisle. Grids of wrought iron pipe, made by A. M. Byers Co., were laid under the aisle surface. Whenever it snows, a heated solution of water and ethylene glycol is pumped through.

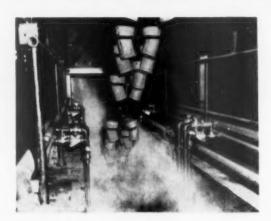
CIRCLE NO. 510 ON INQUIRY CARD-PAGE 17



Rubber Dock Fenders Save \$15,000 Yearly

At a large Southwestern refinery dock, big oil tankers used to be warped into their berths with wooden dolphins. The oak pilings were quickly eroded and had to be replaced once a year. When a change in construction was made, making use of shock absorbing rubber dock fenders, designed by Goodyear Tire & Rubber Co., on steel and concrete pilings, maintenance costs disappeared. The new construction has served two years without showing any signs of damage and is saving about \$15,000 annually in repairs.

CIRCLE NO. 511 ON INQUIRY CARD-PAGE 17



Foundry Steps Up Coating of Cast Iron Soil Pipes by 35%

The cast iron soil pipes produced by Rudskil Foundry Co., Anniston, Ala., are coated with tar before being shipped out to customers. Originally, the heating system for the tar bath employed four banks of pipe coil, trapped by old style traps. Production was hindered by a variety of troubles, not least was that it took 4 hr and 45 min to effect a 30° temperature rise. When a system with 36 Yarway impulse traps equipped on platecoils was installed, the problems disappeared. The same 30° temperature rise was attained in 3 hr and 10 min and the coating vat carries 35% additional load.

CIRCLE NO. 512 ON INQUIRY CARD-PAGE 17

Prefabricated Regulator Assembly Saves Time, Cuts Costs

Installations of district regulator assemblies are now made by the Cincinnati Gas & Electric Co. in one day, by means of standardized parts. They cut installation costs 35-50%, minimize manpower needs and simplify purchasing, parts storage and handling. One design is used for street locations; the other for beyond-traveled-thoroughfares. Welded piping is specified for both, Tube-Turn elbows, reducers and caps provide leakproof connections and optimum flow conditions.

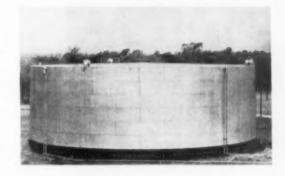
CIRCLE NO. 513 ON INQUIRY CARD-PAGE 17



Evaporation Losses in Oil Storage Tanks Cut in Half

A vapor barrier consisting of a half-inch layer of tiny spheres of Bakelite phenolic resins was installed by Sinclair Refining Co., in an 80,000-barrel cone-roof storage tank in its tank farm at Houston, Texas. The evaporation from this tank was compared with that from a similar tank in the storage area that was not protected by a vapor barrier. It was calculated that the evaporation loss from the tank with the layer of microballoon spheres was approximately one-half that of the tank that had no vapor seal.

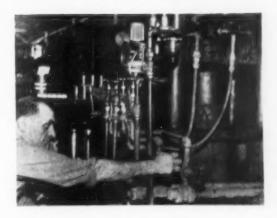
CIRCLE NO. 514 ON INQUIRY CARD-PAGE 17



Maintenance Savings Pay Cost Of Valve 50 Times Over

A single bronze globe valve on a steam line at General Electric's Schenectady plant was subjected to such severe service that it failed, on the average, every two weeks. This valve and its companions in similar service cost in repair and maintenance, every few weeks double and triple the original purchased price. General Electric decided in 1955 to substitute for the bronze valve a Lunkenheimer LQ600 unit. There have been no failures, leakage or signs of wear since it was installed. It has already paid for itself more than 50 times over in maintenance savings.

CIRCLE NO. 515 ON INQUIRY CARD-PAGE 17







Asphalt Paving Laid in 1/2 Time

The John Dillon Co., paving contractor, Chicago, is able to cut by one half the working time needed to asphalt-pave a confined area, such as a fenced-in storage yard. He uses a Blaw-Knox half-size paver. Its maneuverability, good travel speed and the floating action of the screed make it ideal for working in areas requiring short passes, as it is able to move without delay. On a recent playground paving project, ordinarily a 2-day job, Dillon was able to complete the work in one day.

CIRCLE NO. 516 ON INQUIRY CARD-PAGE 17



Operating Air Conditioning System Costs 50% Less

The Ohio Fuel Gas Co. is using a unit powered by engines burning natural gas to aircondition its Columbus, Ohio, business office. The equipment, perfected by Le Roi Div., Westinghouse Air Brake Co., is reported to save 50% in operating costs because the engine uses natural gas as energy at an equivalent energy cost of 0.8 cents per kwh. Electrical power rate for the area costs twice as much. In its first season of using the natural gas engine to power two 100-ton compressors, the Ohio Fuel Gas company saved \$6,000.00.

CIRCLE NO. 517 ON INQUIRY CARD-PAGE 17



Press Down Time Slashed with Inserts

Wire thread inserts are reducing down-time from "hours to minutes" at the Nashua Corp., Nashua, N. H. Short runs at the company's plant necessitate many changes in plate cylinders. Each cylinder has 648 threaded holes and threads used to become worn and damaged. They had to be drilled out, the hole filled up, re-drilled, and re-tapped. This operation took two hours; the down time cost \$16. Now Helicoil stainless wire thread inserts are used; they can be replaced in a few minutes.

CIRCLE NO. 518 ON INQUIRY CARD-PAGE 17



NIBROC TOWELS

more than any other paper towel

Purchasing agents in every industry prefer the new Nibroc towels. They're stronger, softer, friendly to the face, and absorb water like lightning. In white they're the whitest you've seen—product of an exclusive new "white magic" bleaching process. And new manufacturing methods have vastly improved Nibroc towels in the natural shade, too.

Used more by industry and institutions than any other, Nibroc is the first and today more than ever the finest wet strength towel. To save, buy Sofwite® and Softan® tissues. Your dealer will furnish samples, tell how Nibroc reduces towel costs. He's listed under Paper Towels in Yellow Pages. Or write Dept. NG-5, Brown Company, 150 Causeway St., Boston 14, Mass.

Other NIBROC Quality Products: INDUSTRIAL WIPERS . WINDSHIELD WIPERS . KOWTOWLS . WALL, FLOOR, and RECESSED CABINETS

For More Information Circle No. 991 on Inquiry Card-Page 17





Blasting Replaces Chipping; Labor Costs Reduced 50%

McNeil Machine & Engineering Co. of Akron, O. used to chip and grind weldments to remove spatter, flux, slag, and rust resulting from finished welding operations. Two men on each of three shifts were needed. Labor costs were reduced 50% by switching to airless abrasive blasting. Additional savings were made in grinding wheel usage and reduced consumption of compressed air. Now a large steam dome is cleaned in ten minutes; formerly one and one-half hours of manual grinding were needed.

CIRCLE NO. 519 ON INQUIRY CARD-PAGE 17



Special Stud Remover Slashes Repair Costs

Airwork Corporation of Millville, N.J. has been using a patented "Bi-Way" tool to remove and install studs during the overhaul of aircraft engines for over three years. Company Vice President Thomas Dickson estimates that "the Bi-Way studder is 10-15% faster" and "is more satisfactory because it makes it possible to save studs for re-use." He says that the "Bi-Way has extracted up to 94% of studs still in re-usable condition."

CIRCLE NO. 520 ON INQUIRY CARD-PAGE 17



Valve Seat Failures Cut With Alloy Valves

Frequency of valve seat renewals used to be as high as once every two months at Jantzen Inc., Portland, Oregon. Failures resulted from "wire-drawing" in the valves which were used in the company's shrinking and dyeing operations. Purchasing Agent Bill Schade and plant maintenance engineers found the solution to their problem.—Lunkenheimer LQ600 valves equipped with "Brinslloy" seats and discs. They installed the new valves over a year ago and so far there's been no need for repair or replacement.

CIRCLE NO. 521 ON INQUIRY CARD-PAGE 17

NOW Call L.B. FOSTER CO. for



"FASTER FROM FOSTER

Immediate Deliveries from Warehouse Stocks

All Pipe Sizes 1/8"-

SEAMLESS ALLOY PIPE

SEAMLESS CARBON PRESSURE PIPE

PVC PIPE* ALVES-FITTINGS

Foster offers pipe buyers more complete warehouse service-including three new specialties-Seamless Alloy Pipe, Seamless Carbon Pressure Pipe and PVC Pipe, Valves and Fittings. Initial stocks are in our warehousesimmediately available for "Faster-from-Foster" service.

Now, anywhere in the country, when you need pipe, try L. B. Foster Company. We specialize in unusually large quantities, unusually large sizes, the hard-to-get items. Our regular stocks include all types of pipe—seamless, welded, carbon and alloy, prime tested and structural in all sizes 1/8" thru 36", and aluminum pipe. Catalogs are available.

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For More Information Circle No. 992 on Inquiry Card-Page 17

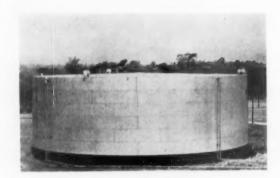




Automatic Lubrication Saves \$1303 per Year

A fully automatic centralized Lincoln lubrication system is reducing operating costs on three 200 spindle Saco-Lowell 4" ring twisters at the Ashton, R.I., Owens Corning plant. Savings from reduced labor, fixed cost reduction, increased traveler life and reduced oil consumption amount to \$1303 per year per machine. Repair and replacement costs from inadequate lubrication were also eliminated. Better lubrication permitted spindle speed of equipped twisters to be increased up to 40%.

CIRCLE NO. 522 ON INQUIRY CARD-PAGE 17



Refining Company Cuts Oil Tank Evaporation Losses 50%

Microballoon spheres, about 1/1000th the size of ping pong balls, manufactured by Bakelite Co., are utilized as a half-inch layer to cover its cone roof storage tanks by Sinclair Refining Company at Houston, Texas. The tiny spheres pack together on the surface of the oil to form a continuous vapor barrier that resembles a layer of wet fudge. This layer prevents the escape of at least 50% of valuable gas fractions from the crude oil into the air above it.

CIRCLE NO. 523 ON INQUIRY CARD-PAGE 17



Baling Machine Does Work That Required 9 Men

Corrugated boxes of all sizes and shapes once accumulated so rapidly on the assembly lines at the Dearborn assembly plant of Ford Motor Co. that they contributed to a minor production jam. Even a force of nine men working two shifts could not cope with the problem. The solution was found in a "Balemaster Cyclomatic", a hydraulic baling machine, manufactured by the East Chicago Machine Corp. Working two 8-hour shifts daily, the machine is able to dispose of 20 tons of corrugated board and other waste.

CIRCLE NO. 524 ON INQUIRY CARD-PAGE 17

Another Goodyear First:

V-Belts with the Green Seql



stay matched from factory to drive

The Green Seal signifies true dimensional stability. It means that now when you reach for a matched set of V-belts, you can be sure they're matched — no matter how long they've lain on the shelf. And that means longer life and a minimum of down time.

It used to be that only steel-cable V-belts by Goodyear were length stabilized. But now, through the miracle of Triple-Tempering, they've been joined by all the other Goodyear Industrial V-belts.

Triple-Tempering is the exclusive process wherein synthetic cord is carefully brought to the peak of strength and stability by controlled tempering with Tension, Temperature and Time. And this gives you not only *length* stability in storage, but greater

shock- and stretch-resistance on the drive.

In addition to 3-T load-carrying members, the Green Seal also brings you "balanced construction." This means each component of the belt is specifically designed to its job to give you cleaner, smoother, longer running which adds up to maximum, trouble-free horsepower hours at minimum cost.

The next time you need V-belts, be sure they're wearing the Green Seal—the mark of a V-belt made with the technical know-how of the world's largest rubber company. They're readily available at your Goodyear Distributor. Or write for details to Goodyear, Industrial Products Division, Lincoln 2, Nebraska, or Akron 16, Ohio.

DIMENSIONALLY STABLE V-BELTS by

GOODFYEAR

THE GREATEST NAME IN DURBER

Green Beal -T. M. The Goodyear Tire & Rubber Company, Akron, Ohio

For More Information Circle No. 993 on Inquiry Card-Page 17



WE CHOSE ANCHOR FENCE for our plant because:

We needed more storage space. Anchor Fence gives us 24 hour protection at a low initial cost with a minimum in upkeep.

"We also find Anchor necessary protection against vandalism and pilferage. It guards our manufacturing areas against intrusion and gives us complete traffic control at all times. Attractive in appearance, Anchor requires no annual maintenance because it's zinc-coated after weaving, not before. Its extreme strength and compact design give us permanent protection."

Anchor Fence is manufactured in three plants—sold through 40 offices and dealers—installed by Anchor Fence experts. 65 years of experience in fencing have made Anchor the world's leading chain link fence. Insist on Anchor Fence. For additional information, write: Anchor Fence, 6615 Eastern Avenue, Baltimore 24, Md.

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Division of ANCHOR POST PRODUCTS, Inc.

Plants in: Baltimore, Md., Mouston, Texas, and Whittier, Cal. • Sold direct from Factory Branches and Warehouses in all principal cities

For More Information Circle No. 994 on Inquiry Card-Page 17

Lubrication Costs Cut 871/2%



A New England manufacturer of copper and brass products was having trouble with the lubricant used on open gears of draw benches. Instead of sticking to the gear teeth it flew off, and large quantities accumulated in the pits under the machine. To solve the problem, the company applied Keystone No. 22 Heavy. This tenacious lubricant spread evenly over the gears and completely eliminated "throw off." As a result, gear wear was reduced to a minimum and lubricant consumption was reduced 87.5%—one drum doing the work of eight.

Circle No. 525 on Inquiry Card-Page 17

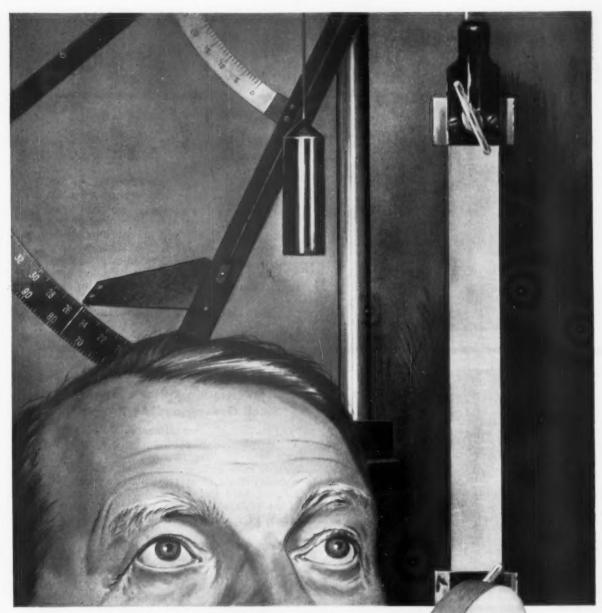
Shatterproof Fiberglas Skylights Replace Glass



Over 50,000 square feet of the sawtooth skylight area at the Rochester, N. Y., plant of the Todd Co., is in process of being converted to Alsynite translucent Fiberglas. This replaces glass skylights which, with their tendency to crack and break, were a continuous maintenance problem. Besides being shatterproof, the Alsynite skylights admit less cold and less heat from the outside for better thermal insulation of the building.

Circle No. 526 on Inquiry Card-Page 17

PURCHASING



Assuring built-in stretch...through quality

Masking tape with the strength and flexibility to stretch around sharp curves without breaking—yet thin enough to assure clean lines and to prevent paint build-up. That's what Behr-Manning's balanced backing does—another example of high quality at work in BEHR-CAT tapes.

BEHR-CAT TAPE

BEHR-MANNING CO. TROY, N.Y. A DIVISION OF NORTON COMPANY

BEHR-MANNING PRODUCTS: Coated Abrasives • Sharpening Stones • Behr-cat Tapes NORTON PRODUCTS: Abrasives • Grinding Wheels • Grinding Machines • Refractories



For More Information Circle No. 995 on Inquiry Card-Page 17

In Canada: Behr-Manning (Canada) Ltd., Brantford. For Export: Norton Behr-Manning Overseas Inc., New Rochelle, N. Y., U. S. A.



A full line of quality tapes for every purpose.



CASE HISTORIES



Spot Welding Saves Builder \$1,400

Sigma spot-welding has been put to new use by Flohr and Company. This contractor used a sigma spot-welding torch in fabricating a fourteen gauge steel covering to protect the concrete block walls of a U.S. Post Office building. This new application of sigma-welding proved faster and more economical than both riveting or other welding methods formerly used. Savings effected by sigma spot-welding in the job amounted to \$1,400.

CIRCLE NO. 527 ON INQUIRY CARD-PAGE 17



"Walkie-Worklifter" Solves Small Order Handling Problem

At its Chicago plant, Minneapolis-Honeywell is using Walkie-Worklifters for a variety of unit load handling operations and also for manual stock picking to fill small orders. The company finds them particularly convenient for short haul applications. Another advantage of the Walkie-Worklifter is that it provides a means of stacking light loads in areas with limited floor capacity and for taking light loads on elevators of limited capacity.

GIRCLE NO. 528 ON INQUIRY CARD-PAGE 17



Grinder Ups Production Of Brass Parts Tenfold

Two-head belt grinder, with specially molded conveyor belt, permitted a tenfold production increase in processing brass escutcheon plates. Previously, parts were manually roughed on backstand idler, semi-finished on a buffing wheel, and then color-buffed, at a rate of 310 parts per operation. Two-head model combines first two operations in single cycle; eliminates necessity of color-buffing; ups rate to 3600 parts per hour.

CIRCLE NO. 529 ON INQUIRY CARD-PAGE 17



New lithium base

GULFCROWN GREASE

... the one grease that does the work of many

It's a fact—you can use Gulfcrown practically anywhere! On plain or anti-friction bearings. In gear boxes. Outside or inside. You name it, chances are Gulfcrown will lubricate it—but good! Operating conditions can be hot, cold or wet . . . this tough, all-purpose grease does its job regardless.

You can see how one multi-purpose grease that does the work of many is a big money-

saver. It reduces inventory, cuts lubricating costs and prevents application errors. Check the saving yourself—test Gulfcrown. Ask your Gulf sales engineer or write for free literature.

GULF OIL CORPORATION

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THE FINEST PETROLEUM PRODUCTS FOR ALL YOUR NEEDS



ASE HISTORIES



300% Increase in Jet Blade Grinding

Lakeshore Industries reports a 100% to 300% increase in grinding jet blades through installation of an Engleberg platen-type abrasive belt grinder. The grinder replaces the former method of scribing and hand grinding precision forgings. Daily production rate of 600 jet turbine buckets is now met by a single machine operator where formerly three men were required.

CIRCLE NO. 530 ON INQUIRY CARD-PAGE 17



Drilling Time Cut from 3 Minutes to 45 Seconds

A leading manufacturer of welding equipment has cut drilling time on some operations from 3 minutes to 45 seconds. Use of Howe & Fant turret drilling machines and positioning tables to drill and tap a complex hole pattern in a forged brass regulator body has made the speedup possible. The equipment is practically all of the general purpose type and can readily be converted from one job to another.

CIRCLE NO. 531 ON INQUIRY CARD-PAGE 17



Pipe Welding Job Speeded, Costs Reduced

Users report Heliarc welding eliminates the need for backing rings in welding carbon steel pipe. Developed by Linde Air Products, Heliarc welding produces higher quality root and finish-pass welds at lower cost than flux-coated metal are welding with backing rings. Backing rings, normally used in metal arc welding have to be removed to obtain a smooth inside weld contour. Heliarc welding, performed in inert atmosphere, produces smooth inside penetration beads without backing rings.

CIRCLE NO. 532 ON INQUIRY CARD-PAGE 17

END/ CONCRETE "DUSTING" WITH ONE SWIPE

Seal and finish concrete with Conq-r-Dust!

In one simple step you control dust TWO WAYS when you use Johnson's Conq-r-Dust on concrete floors! You seal the surface to prevent the breaking away of small concrete particles. You finish the surface to smooth out jagged pits and pockets that hold deposited dirt and dust. Sweeping and all floor care become far easier. Dust damage—to machines, stocks in storage, health—is prevented. Use on cured or uncured concrete—no neutralizing necessary. Conq-r-Dust is one of Johnson's complete line of superior floor care products. Order today from your local Johnson's Wax distributor.

FACTORY FLOOR CONSULTANT SERVICE

Use Conq-r-Dust or other heavy-duty Johnson Wax products and most floor problems are solved automatically. If you should run into a problem where help is needed, ask your distributor to call in a factory-trained Johnson J-Man.



For your distributor's name, write:
S. C. Johnson & Son, Inc.
Maintenance Products Department P57
Racine, Wisconsin

PRODUCTS AND SERVICES FROM JOHNSON'S WAX TO SOLVE ANY FLOOR PROBLEM

save production time repack under pressure ...

When lost production minutes are counted in dollars, replacing worn valve packing while the line is under full pressure makes

With standard O-B bronze gate and globe valves - 125 lbs. WSP and above - production continues without interruption while packing is replaced. Just open the valve full and the special stem design seals pressure within the valve body.

You will find a complete line of O-B valves



For More Information Circle No. 998 on Inquiry Card-Page 17

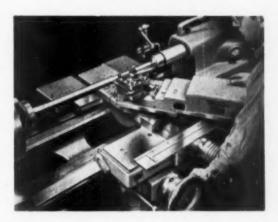


CASE HISTORIES

Turn Out Four Arbors Instead of Three

Scully-Jones & Co., manufacturer of milling machine arbors, found itself jammed with orders. On advice from engineers of the R.K. LeBlond Machine Tool Co., Scully-Jones added Hydra-Trace, a heavy duty tracing attachment, to its LeBlond 16-in. RT engine lather. Now the company is turning out four arbors in the time formerly needed to produce three. Scully-Jones is still using the same lathe but with the Hydra-Trace unit.

CIRCLE NO. 533 ON INQUIRY CARD-PAGE 17



Use 66% Less Lubricant, Get Better Results

Various lubricants used to cushion press gears in a large automotive stamping plant thinned out causing metal-to-metal contact. Finally the company tried Keystone 122C5X high film lubricant which eliminated gear wear and as a result lowered production costs. In addition the firm has found that it's using 66% less lubricant than formerly.

CIRCLE NO. 534 ON INQUIRY CARD-PAGE 17



Scrap Handling Speeded; Hour's Work Takes 5 Minutes

Micro Deburring Co., Chicago, finds it can do an hour's work in 5 minutes with a Stearns magnetic parts separator. It previously took two men a half an hour to separate a load of parts from deburring chips manually on a screen. The magnetic parts separator does the job in less than 5 minutes. The machine has been operating 18 hours a day on a 5-day week, separating an average of 10,000 lb of chips and parts daily for the last 5 years. Only a few repairs were required during the period.

CIRCLE NO. 535 ON INQUIRY CARD-PAGE 17



CLASS OF SERVICE This is a few message police tes deferred charnesse is traditional by the proper symbol.

WESTERN UNION

W. P. MARSHALL, POSCOSOT

CENTURY TOOL CO.

ATT: HARRY SMITH, P. A.

RE PHONE ORDER 1276 RECEIVED TODAY. SHIPPED TODAY COMPLETE. ADVISE YOUR SHOP FOREMAN THAT OUR PROMPT ORDER HANDLING SYSTEM AND HUGE STOCK INSURE THIS SAME-DAY SERVICE.

SPECIAL SIZES GET FAST SERVICE, TOO. YOU CAN DEPEND ON ABC.

ACCURATE BUSHING COMPANY
445 NORTH AVENUE, GARWOOD, N. J.



For More Information Circle No. 999 on Inquiry Card-Page 17



For More Information Circle No. 1000 on Inquiry Card-Page 17

Sharp Edges Leave Conveyor Belting Undamaged



The woodworking firm of Carr, Adams & Collier were finding replacement costs of belting on a lumber and wood scrap conveyor unduly burdensome. Several brands of industrial belting were tried out to find one that would not be constantly damaged by the sharp edges of the lumber scrap carried by the conveyor. A durable product to give satisfactory service was finally discovered in Imperial Standard Rexall belting. It is now always specified as the required belt, both as replacement and on a new conveyor.

Circle No. 536 on Inquiry Card-Page 17

Safety Hats Prevent Serious Injuries at Refinery

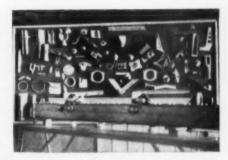
In four separate instances recently, hard hats provided workers of the Esso Bayway Refinery at Linden, N.J., with proof of their utility in protecting against serious injury. All four wore safety hats made by Mine Safety Appliance Co. One worker was wearing an aluminum safety hat. He merely had a slightly dented hat when an 8-lb piece of concrete struck him on the head from a six-foot height. Skullguards made of laminated plastic saved the other three in different accidents. One man fell from a scaffold headlong to a concrete floor, splitting his hat, but suffered no serious injury.

Circle No. 537 on Inquiry Card-Page 17



Aerocycle, a one-man helicopter now being tested by the U. S. Army, is one of the many aircraft for which Aeroaffiliates machines precision parts.

Some Examples of Aeroaffiliates' Work. All require fine tolerances and excellent finish. All were made with the help of Cities Service Chillo Cutting Oils.





"Fine Tolerances! Excellent Tool Life! With Cities Service Chillo Cutting Oil"

In probably no other machining operation are the tolerances so fine, the requirements so demanding as in aircraft work . . . especially when it's for the U. S. Army or Air Force.

But it is on such work that Aeroaffiliates, Inc. of Fort Worth, Texas, has become famous.

Every day, Aeroaffiliates employees must work with tolerances as fine as .0001, and their products must have an unusually good finish...so good that they are measured by a special gauge before the aircraft industry will accept them.

Obviously, this could play havoc with tool life

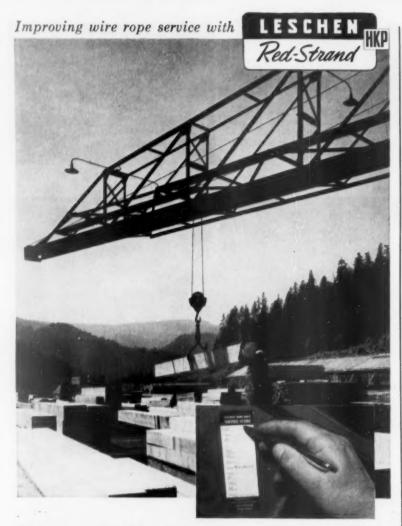
..."but thanks to Cities Service Chillo Cutting Oils, tool life and finish are the best ever," says Aeroaffiliates. "These cutting oils are equalled only by the help we receive from the Cities Service Lubrication Engineer, a man whose knowledge and help we greatly value."

Whatever your type of machining operation, there's a Cities Service cutting oil tailored precisely for it... and a Cities Service Lubrication Engineer to help you choose it. Call him in this week. Or write: Cities Service Oil Company, Sixty Wall Tower, New York 5, N. Y.

CITIES (SERVICE

QUALITY PETROLEUM PRODUCTS

For More Information Circle No. 1014 on Inquiry Card-Page 17



How much can you save with Leschen wire rope service?

Wire rope costs can be reduced substantially—10%, 20% or more—by using the right rope type, construction and brand for every job.

How can you tell if you are using the right rope? How much can you save? There's a simple way to find out. You can obtain accurate, on-the-job performance data by using Leschen's Service-Score Sticker System. You'll prove to yourself which ropes work best. And when you see the score, you'll use more Red-Strand wire rope—because Leschen quality and Leschen engineering service can save you money.

Service-Score Stickers are available from any Leschen field man or distributor. Just ask, or write Leschen Wire Rope Division, H. K. Porter Company, Inc., St. Louis 12, Mo.



For More Information Circle No. 1008 on Inquiry Card-Page 17

Sprayed Metals Solve Heat Transfer, Corrosion Problems



Sprayed aluminum, the product of Metallizing Engineering Co., is used by Servel, Inc., manufacturers of gas refrigerating units, to improve the heat transfer characteristics at key operating areas, such as joints through pipe lengths, in various units. Steel pipes and chambers when welded into a single refrigerating system have the joints metallized with pure zinc, after fabrication, to avoid corrosion at these points and ensure trouble-free operation.

Circle No. 538 on Inquiry Card-Page 17

Wall Maintenance Costs Cut By Vinyl Covering



Washrooms and corridors of the Johnson & Johnson factory at Menlo Park, Calif., must meet strict sanitary requirements yet provide worthwhile savings on maintenance costs. The company finds that Bolta-Wall vinyl covering meets these conditions. Tough and durable, it resists stains, scuff marks and abrasion in these heavily-trafficked areas. The only maintenance required is a periodic washing with soap and water.

Circle No. 539 on Inquiry Card-Page 17

CESCO...RIGHT—BEFORE YOUR EYES!



New No. 565 flexible plastic goggles



New fiber-glass face shield



Cup-type goggles



Fiberalass helmet



LITE-KLIPS

Approved respirators



It Pays to **Buy Safety Equipment** from a Safety **Specialist**

· CESCO distributors are experienced safety specialists. They know how to work with safety directors, personnel directors and plant management to help in the choice of the finest safety equipment available. They are well stocked with equipment that has stood the test of time in industrial plants everywhere.

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Distributors

Approved respirator hoods



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COLUMBUS, OHIO Williams & Co., Inc. 851 Williams Avenue

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KNOXVILLE, TENN

LOS ANGELES, CALIF. Guardian Safety Equip 7223 S. Main Street

LOUISVILLE, KENTUCKY Williams & Co., Inc. 1109 S. Preston Street

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MONTREAL, CANADA The Butler Optical Company, Ltd.

CHICAGO EYE SHIELD COMPANY

2315 Warren Boulevard Chicago 12, Illinois



goggles

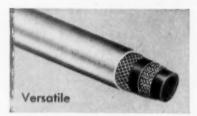


FOR SAFETY

For More Information Circle No. 1003 on Inquiry Card-Page 17

Industrial HOSE?

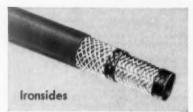
Your Quaker Rubber & Quaker Pioneer distributor has these—and other rugged hoses in stock and ready to go!



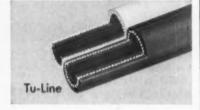
AIR. For heavy duty work. Lightweight, highly flexible. Resists weather damage and abrasion. Non-porous tube of oil resistant rubber compound. Rugged Neoprene cover.



FIRE. For long service in interior fire protection. Resilient, flat-folding. Flexible, crackresistant. Leak-proof tube bonded to strong single jacket cover.



STIAM. For general steam-handling jobs. Strong, light, flexible, kink-proof. Steel wire and glass reinforcing for extra safety. Resists high pressures and temperatures up to 368°F.



WILDING. Especially effective on portable welding dollies. Kink-free. Resists abrasion and welding gases. Two lines securely bonded together form a single safe hose unit.



WATER. For general water service at medium pressures. Light weight, easy to handle. Non-porous tube resists water absorption. Rugged, slow-aging cover resists abrasion.

Save time and money. Call your Quaker Rubber-Quaker Pioneer distributor first, when you need hose or other industrial rubber products.

For further information, write to: H. K. Porter Company, Inc., Quaker Rubber Division, Philadelphia 24, Pa., or Quaker Pioneer Rubber Division, Pittsburg, Calif.



QUAKER RUBBER DIVISION

H. K. PORTER COMPANY, INC.

For More Information Circle No. 1004 on Inquiry Card-Page 17

Mobile Radios Coordinate Activities in Multi-Story Plant



The main plant of the Smith-Corona Typewriter Corp., at Syracuse, N. Y., is in an 8-story building. Delays were frequent and production was unnecessarily held up if personnel, materials or equipment, especially that for materials handling, happened to be on one floor when wanted on another. Mobile radios, developed by General Electric, were recently installed at the plant. They have greatly speeded up routine operations. For example, it is now possible for the dispatcher, by means of the two way radio, installed on fork lifts, to summon the materials handler on any

Circle No. 540 on Inquiry Card-Page 17

V-Belts Increase Lathe Output 400%

Vital parts for guided missiles are made by Stanley Foundries, Huntington Park, Calif. These are machined on a vertical lathe. Formerly, the lathe was driven by a flat belt, which failed to deliver full power from the 20 hp motor to the lathe. Early in 1955, the drive was redesigned for V-belts. Vulco Ropes, produced by the Gates Rubber Co., were chosen to transmit the power. As a result, tool speed was upped by 1/3, and depth of cut increased 21/2 times. Altogether the Gates ropes have increased production on the lathe by 400%.

Circle No. 541 on Inquiry Card-Page 17

Announcing the

PAX WATERLESS SKIN CLEANER

PHARMACEUTICAL GRADE



The safest, yet most effective waterless skin cleaner ever produced

- PURE WHITE
- · USE WITH OR WITHOUT WATER
- · CLEANS INSTANTLY



 WILL NOT **DECOMPOSE**

- PLEASANT ODOR
- LOW USE COST
- CONTAINS LANOLIN AND **HEXACHLOROPHENE**

Pax pharmaceutical grade Waterless Skin Cleaner's unique formulation gives three major benefits-instant cleaning action, safety in use, and highest economy. It cleans skin of grease, ground-in grime and dirt with amazing speed. Yet, it is so gentle it may be used on skin where even mild soaps cannot be tolerated. The efficiency and safety assures immediate employee satisfaction. Pax new Waterless Skin Cleaner leaves no hint of greasy after feel and dispenses uniformly.

(U. S. AND WORLD-WIDE PATENTS APPLIED FOR)

The Key to Safe Waterless Cleaning

Look for the Pax Rooster ... Over Thirty Years of Service to Industry

Also Available

PAX EXTRA-HEAVY DUTY WATERLESS SKIN CLEANER

For use in removal of exceptionally stubborn soils, dried paints, dried adhesive and ters.

WRITE TO SOLVE YOUR WATERLESS CLEANING PROBLEMS



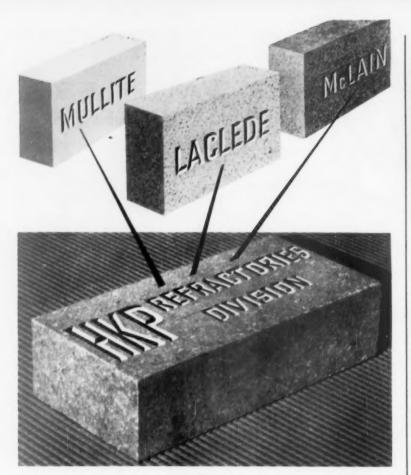
H. PACKWOOD MFG. CO.

Manufacturing Chemists
Tower Grove Ave., St. Louis 10, Mo.

- Please have your representative call to provide in-plant" waterless skin care survey.
- ☐ Please send samples.

Address

State.



HKP now gives you this newly expanded source of refractories

Now the combined operation of Laclede-Christy, McLain Fire Brick and Mullite Works is under H. K. Porter Company, Inc. leadership. This integrated organization gives you an expanded refractory product line from one source. It means increased benefits for you through greater research, manufacture and distribution facilities. It means still better service to you.

When you need refractories of any type, check HKP Refractories Division—the growing producers in the industry.

LACLEDE-CHRISTY WORKS - McLAIN FIRE BRICK WORKS - MULLITE WORKS

St. Louis, Missouri Phitsburgh, Pennsylvania Shelton, Connecticut



REFRACTORIES DIVISION

H. K. PORTER COMPANY, INC.

For More Information Circle No. 1006 on Inquiry Card-Page 17

Colloidal Graphite Ends Lubrication Problem



Whitehall Pharmacal Co., had been having lubrication problems with the bucket conveyor in its coal storage elevator. Pin wear was excessive, due to abrasive coal dust and the corrosive effects of moisture. Various lubricants were tried without success. Finally the right solution was found in No. 2404 "Dag" dispersion of colloidal graphite, an Acheson Colloids Co. products. Diluted with 1:7 mineral oil, this is sprayed on the conveyor links at two week intervals. Corrosion maintenance for the conveyor has been all but eliminated. Circle No. 542 on Inquiry Card-Page 17

> Light Tarpaulins Speed Truck Unloading



Shorter load- and unload time and less downtime are some of the benefits experienced by Edgcomb Steel Co. from equipping its 20-foot trucks with neoprene coated nylon tarpaulins, made by Alden Rubber Co. The new covers can be handled by one man, even when wet, since they are completely water-proof and lightweight. Also, downtime for repairs is virtually eliminated as most damage resulting from the sharp edges of metal cutting the tarpaulins can be repaired by the driver on-the-spot.

Circle No. 543 on Inquiry Card—Page 17

For More Information Circle No. 1007

on Inquiry Card—Page 17→

PURCHASING

Save by using specialized refractories

Many refractories problems in metal-working furnaces have been solved economically by the use of B&W specialized refractory castables. Each ferrous or non-ferrous furnace application requires a specific combination of properties to meet the service conditions. Whether your problem is high temperatures, abrasion and erosion, slag attack or the need for insulation, to name a few, you will find the refractory castable best suited to your requirements in B&W's line. Shown here in digest form are data on the widely used B&W refractory castables for metal-working furnaces:

B&W Refractory Castables for Metal Working Furnaces

	Temp. F	PROPERTIES	TYPICAL APPLICATIONS				
B&W Kaocast	3000	High resistance to spalling and slag attack. Low volume change and negligible reheat shrinkage.	Soaking pit covers, linings of high temperature heating and forging furnaces, burner blocks, electrode linings of electric furnace roofs, linings of non-ferrous metal furnaces.				
B & W Kaocrete 32	3200	High strength, exceptional refractoriness, un- usual volume stability, excellent resistance to spalling.	Can be used in applications similar to those of B&W Kaocast and where higher refractoriness is required.				
B&W Kaocrete D	2500	Sufficient strength and hardness to withstand abrasion, considerable physical abuse and erosion.	Aluminum melting furnaces, linings and car tops in heat treating furnaces, as well as in sections of a wide variety of furnaces that are subject to scraping by hand tools or other mechanical abuse.				
B&W Kaocrete A	2600	Resists reducing atmospheres. Has good resistance to erosion, abrasion and thermal shock.	Annealing furnace bases and other applications where resistance to reducing atmospheres is essential. Also as a general purpose castable for linings in medium temperature service.				
B&W Kaocrete B	2300	Has an adhesive plastic texture particularly suited for vertical or overhanging constructions. Excellent for plastering.	Patching linings and baffies and for any application where plastering rather than gunning or casting is required.				
B&W Kaocrete Li	2700	High alumina content, exceptionally high strength for resistance to abrasion and erosion.	Aluminum furnace linings where high alumina content is important.				
B &W Kaolite 20	2000	Offers castable's fast, low cost installation plus insulation. Mas refractoriness, light weight and low heat conductivity and, in addition, will resist reducing atmospheres. Can be poured or gunned.	Aluminum melting, heating and heat-treating, annealing and forge furnaces. Also for general maintenance and				
B&W Kaolite 22	2200	Has the same properties as B&W Kaolite 20. Can be used for higher temperatures but not in reducing atmospheres.	patching.				

Send for your copy of B&W Bulletin R-35. It gives additional information on B&W's versatile refractory castables.

B&W REFRACTORIES PRODUCTS: B&W Allmul Firebrick • B&W 80 Firebrick • B&W Junior Firebrick • B&W Insulating Firebrick • B&W Refractory Castables, Plastics and Mortars • B&W Silicon Carbide







Laboratory ...



Production Line...



Tool Room ...



Finishing Operations...

Wipe better at less cost

K imwipes Industrial Wipers save over cloth, eliminate laundry charges, rag collecting, counting and material losses. Soft, disposable Kimwipes save production time. They wipe clean faster, dry or soaked with solvents!

You can often reuse a Kimwipe, too. When the job calls for a clean wiper, reach for a fresh Kimwipe—dispensed pop-up fashion just like Kleenex tissues! For your convenience...in pop-up dispensing cartons or metal wall dispensers.

Kimwipes are made by the makers of Kleenex* tissues



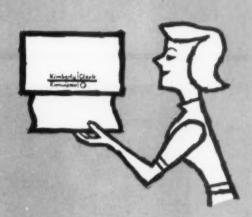
Machine Maintenance...



Inspection Department...



Print Shop...



General Plant Use...

Kimwipes

Kimberly-Clark Corporation 2 3 Neenah, Wisconsin



N D U S T R I A L W

*T. M. Rog. U. S. Pat. Off.



CASE HISTORIES



Slime Control Program Costs Cut \$18,700 in One Year

A large paper mill in the East was plagued with difficult slime conditions in its water supply which presented an acute problem of excessive paper breaks and spotting. All known toxicants were tried to destroy the slime producing micro organisms. None succeeded unt l TBTO, an agent developed by Metal & Thermit Corp. was used. It completely eliminated slime-clogged systems at a saving of \$18,700 yearly in toxicant costs alone.

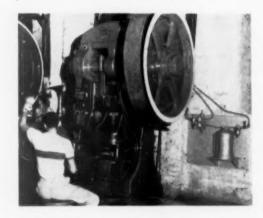
CIRCLE NO. 544 ON INQUIRY CARD-PAGE 17



Aluminum Oxide Grain Serves as Floor Hardener

The Carborundum Co., with the assistance of one of the nation's leading industrial floor fabricators, experimented with aluminum oxide grain as a hardening material for cement floors. Tests showed the new material was superior to the metallic borings type of hardener commonly used. From its own tests Carborundum says Aloxite provides better traction, eliminates slipping hazards, provides longer wear and greater economy than do other hardeners.

CIRCLE NO. 545 ON INQUIRY CARD-PAGE 17



For More Information Circle No. 1088 on Inquiry Card—Page 17 518

Die Life Doubled, Output Up 15%

After Fairfield Barrel Co. installed a Norgren Spray-Lube System to automatically lubricate the die and blanks on its 75-ton punch press, it noticed these results: (1) machine output increased 15%; (2) die life was doubled; (3) operations at the machine became much cleaner; (4) lubricant costs were reduced 50%. Formerly Fairfield Barrel lubricated the die and steel blanks by hand, once during each six machine cycles.

CIRCLE NO. 546 ON INQUIRY CARD-PAGE 17

CHECK WHAT YOU NEED FOR GREATER VALUE IN "COMPANY CLOTHING"



- LONGER LIFE
- ACID RESISTANCE
- **MORE LASTING NEATNESS**
- **GREATER DURABILITY**
- WASH AND WEAR

HERE'S HOW DU PONT FIBERS CAN GIVE YOU THESE **ADVANTAGES AT LOWER COST**

Today, Du Pont supplies fibers used in fabrics that can meet your exact requirements. All are designed to last longer . . . look better with easier upkeep . . . require fewer replacements under particular service conditions.

The secret of this versatility is the Du Pont fiber used: "Dacron"* polyester fiber, nylon, or "Orlon"** acrylic fiber. Each has characteristics that contribute specific benefits to a given fabric.

Call on Du Pont for suggestions

that can give you greater value in your "company clothing". Du Pont fabric research and development information is available without cost to help you find a work clothing or uniform fabric that looks better, wears better-and costs less in the long run.

To get the complete story on fabrics"engineered" for specific jobs - just clip and mail coupon at right.



E. I. du Pont de Nemours & Co. (Inc.) Textile Fibers Department Room N-5523 Wilmington 98, Delaware Please send me information about "engineered" fabrics

ORLON

For More Information Circle No. 1010 on Inquiry Card-Page 17

"Bearing Life Boosted 1500%... Production Increased 50%"...

Actual Case Histories Show how Lincoln Distributors Solve Maintenance Problems, Help Plants Cut Operating Costs



It pays you to buy from your Lincoln Distributor

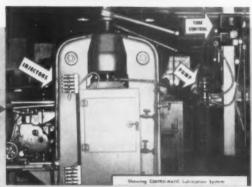
- because He carries the complete nationally advertised Lincoln Line, from Grease Fittings to Centralized Systems—everything for modern application of Lubricants and Materials.
 - He represents a single, dependable source for hundreds of other products.
- His warehouse facilities save you storeroom space and cost.
- He saves you time and money by simplifying purchasing procedures.
- He is an up-to-date source and clearing house for the latest information on new products, materials and methods.

Lincoln

THE MOST TRUSTWORTHY NAME

IN LUBRICATING EQUIPMENT

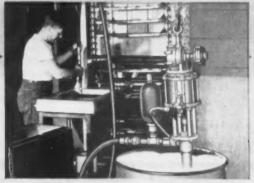
Man-hour Savings of 200%... in Mills and Factories with Lincoln LUBRICATING EQUIPMENT



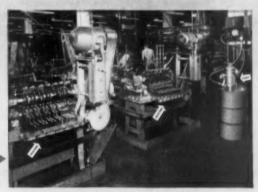
Faxon Engineering Company, Hartford, Conn., recommended installation of a completely automatic Lincoln Centralized Lubrication System to serve journal bearings on cold roll mills of the Miller Company, Meriden, Conn. The results: Bearing life was extended from two to 30 months, a 1500% increase... lubrication down-time was completely eliminated ... cold-rolling operations were reduced ... and power consumption was cut 20%.



Since LeVally-McLeod, Schenectady, N. Y. Installed Lincoln Centralized Lubrication Systems on two batteries of punch presses at the nearby G. E. plant, the presses have operated without a single bearing failure. All bearings on each bank of 20 presses are now automatically lubricated from a centrally located, time clock-controlled pump. Results: An 18-minute production gain for each press, each shift...plus no down-time for lubrication.



Grand Rapids Supply Company, a Lincoln Distributor, solved a knotty gasket application problem for the Kelvinator Plant. American Motors, Corp., Grand Rapids, Mich. by providing a low-pressure, air-operated Lincoln materials dispensing pump. Results: Man-hour savings of 200% and a production increase of 50% for Kelvinator...plus a 66% reduction in number of workers required for gasketing operations.



Lincoln Distributor Shiviey Bros., Inc., Flint, Michigan, saved one of the nation's largest automobile manufacturers from having to buy a complete new bettery of cam milling machines. A time clock-controlled Lincoln Centralized Lubrication System was installed on the existing battery of 18 machines. Result: increased production, 80% reduction of rejects, and 50% reduction of lubrication consumption.

Call your local Lincoln Distributor...take him into your confidence...let his wealth of experience and wide range of facilities and services help YOU solve plant operating problems...

Ask for these new Lincoln catalogs: No. 41, 64 and 80-1.

LINCOLN ENGINEERING COMPANY Division of The McNeil Machine & Englacering Co.
5783 Natural Bridge Ave., St. Louis 20, Mo.



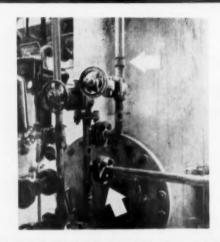
CASE HISTORIES



Floor Scrubbing Time Cut 90%

Cleaning the stockroom and the truck garage of a Chicago manufacturing firm used to take 70 man-hours. Through the use of a Finnell combination scrubber-vacuum and Setol, a fast acting alkaline cleanser, it now only takes 7 man-hours. The machine, self propelled, has a 26" spread and applies the cleanser, scrubs, and picks up all in one operation. The cleanser emulsifies oil and grease so it can be sucked up by the machine's vacuum.

CIRCLE NO. 547 ON INQUIRY CARD-PAGE 17



Special Fittings Cut Pipe Installation Time 70%

Process lines at the new Koppers chemical plant in Kobuta, Pa. are made of Schedule 5 light wall stainless connected with "Speedline" fittings. These fittings helped reduce installation time by 70%. They did it by eliminating leakage problems that develop frequently when threaded joints are used. With the special fittings, there's no need to back-weld joints (an expensive process) in order to prement leaks. Additional savings in material cost arise because of the use of the lighter weight Schedule 5 pipe.

CIRCLE NO. 548 ON INQUIRY CARD-PAGE 17



Heat Resistant Grease Saved Bleachery \$9500 in 2 Years

Hohokus Bleachery, Hohokus, N. J., replaced tenter frame gears on an average every three weeks. Replacement costs were about \$216 a month. The organic greases used failed to protect the gears in the high temperature of 400 F to which they were exposed, though they were pressure-lubricated daily. Two years ago, Hohokus started using Dow Corning 41 Grease. There hasn't been a gear failure since. The company estimates it has saved \$9500 in two years.

CIRCLE NO. 549 ON INQUIRY CARD-PAGE 17

NOW GENERAL ELECTRIC TURNS WATER COOLER INTO "BUSINESS MACHINE"

and cuts cost of coffee breaks



Model JCH1

New General Electric Hot and Cold Water Coolers

PIPING HOT WATER
Always on tap

Coffee, tea, chocolate, soups... other instant beverages ready in a jiffy—employees need not leave the working area. REFRESHING COOL WATER
Always on tap

The fully insulated sanitary cooling unit keeps an ample supply of refreshing drinking water available.

ANOTHER EXTRA TOUCH. Roomy refrigerated compartment stores bottled beverages, fruits, lunches, milk, cream, other perishables. Two lever-action cube trays supply 48 ice cubes.

 This on-the-job refreshment center has the same importance to management as modern business machines, because it saves coffee break time that's worth real money.

Actual records spotlight the economy and efficiency it brings to offices and plants, with savings in some instances running to thousands of dollars a year. It's a good will builder, too—employees like its convenience and appreciate getting their refreshment at lower cost.

There is a General Electric model to fit your particular needs, engineered for your satisfaction and backed by the famous General Electric 5-Year Protection Plan. Why not get full information about this business-like solution to the coffee break.

Also available, Pressure type Hot and Cold model (shown here). Standard Bottle and Pressure type models and new economy-size Junior Cooler.



Model RHS12

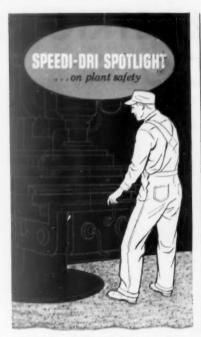
Call your local General Electric Water Cooler Dealer, General Electric Co., Commercial and Industrial Air Conditioning Department, 5 Lawrence Street, Bloomfield, New Jersey.

Progress Is Our Most Important Product

GENERAL (ELECTRIC

In Canada, Canadian General Electric Co., Ltd., Montreal

For More Information Circle No. 1012 on Inquiry Card-Page 17



SOL-SPEEDI-DRI.

green-flecked to tell you you've bought the best

"double S-d"—Sol-Speedi-Dri—is now greenflecked to tell you it's in a class by itself. "double S-d" was the first mineral oil and grease absorbent. It's the largest selling, because it is modern industry's greatest convenience.

New double S-d provides the most efficient floor coverage per pound, keeps plant floors clean and dry. Improved thirstiness and holding power, and the natural hardness and dustlessness of double S-d helps to reduce house-keeping costs and to increase production by keeping workers safely on the job.

When you order, be sure you check for the flecks—they're your identification of quality and value.

Get double S-d from your distributor today. Or check the coupon, attach to your letterhead and mail to SPEEDI-DRI DIVISION, Minerals & Chemicals Corp. of America, 2286 Essex Turnpike, Menlo Park, New Jersey.

Free sample
Literature
Name of nearest distributor



For More Information Circle No. 1016 on Inquiry Card-Page 17 Small Engine-Driven Electric Plant Powers Tools



M. H. Anderson Construction Co., frequently does construction field jobs where power has to be supplied to several tools at the same time. For over a year a portable Onan 205AJ electric plant, driven by an air-cooled, gasoline engine has met every challenge. At one time it was used to power four Skilsaws, 115 v, 11 amp, with cords from 15' to 100'. The saws easily ripcut through 2 x 6's at once. At another time, it powered satisfactorily a plumber's die threader and cutter with 11 amp and 3 Skilsaws. It proved similarly successful on a table saw, 115 v, 15 amp, and with assorted electric hand drills

Circle No. 550 on Inquiry Card-Page 17

Nitriding Lengthens Tool Life by 400%

Temco Aircraft Corp., Dallas, Texas is securing 200% to 400% longer life from end mills and other high speed tools, subject to excessive wear in service. This phenomenal increase in useful life is the result of nitriding, a heat treating process, performed in an Ajax internally-heated electrode type salt bath furnace. The process provides a thin case so extremely hard that, in terms of Brinell hardness, readings up to 1100 are secured.

Circle No. 551 on Inquiry Card-Page 17

FOR MORE INFORMATION
ON PRODUCTS IN THIS ISSUE
PLEASE USE
INQUIRY CARD—PAGE 17

CATALOG CATALOG BRAND NEW FACTS about ACID RESISTANT WORK CLOTHING

Also featuring LINT-FREE shirts and pants as well as men's and women's lab coats for super-clean conditions.

See how Worklon Industrial Apparel of 100% Orlon and 100% Dynel

- Cuts work clothes costs
 as much as 93%
- Outwears cotton and wool by 50 to 1
- Durable, comfortable and easy to care for
- Washes easily, dries quickly
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STATE				

For More Information Circle No. 1017 on Inquiry Card—Page 17

PURCHASING

You'll save time and money with Pittsburgh Brushes

Many professional painters know they'll work faster and better with Pittsburgh Brushes—Gold Stripe or Red Stripe. Made with the finest available bristles, these brushes give you greater carrying capacity, ease of release. Because they're so well balanced, you paint more easily and with less fatigue.

· Gold Stripe Brushes are made with finest pure China bristles. Red Stripe Brushes are available with pure hog bristles, 100% Tynex Nylon bristles, and scientific blends of pure and synthetic bris-tles. For the address of the Pittsburgh Brush supplier nearest you, write Pittsburgh Plate Glass Co., Brush Div., Dept. P-57, 3221 Frederick Ave., Baltimore 29, Md.



PITTSBURGH



PAINTS . GLASS . CHEMICALS . PLASTICS



For More Information Circle No. 1024 on Inquiry Card-Page 17 MAY, 1957



LATEX

acids, alkalies, salts . . .

Ideal for most water solutions of Industrial Gloves

Made from natural liquid latex, processed in the Wil-Gard laboratories for extra high tensile strength. Wil-Gard Latex Gloves are noted for wearing qualities, pliability, and curved-finger comfort. Recommended for ketones and most water solutions of common corrosives.



67-D MEDIUM - Me-67-D MEDIUM — Medium weight, sizes 7 through 11, 11" long. Smooth or Firmhold finish. 68-D Medium hewy weight, sizes 7 through 9, 11" long; sizes 9½, 10, 11, 12" long. Smooth or Smooth o 12" long; Smooth or Firmhold finish.



64-D LIGHT Light weight, sizes 7 through 11, 11" long; Smooth or Firmhold finish.



KANRY-TEX LATEX GLOVES, heavily reinforced, are available for canning industry service, together with fingerless or one-finger style Latex TANNERS' MITTENS.

Sold only through distributors

Send for FREE 1957 CATALOG

TELLS HOW TO CHOOSE THE RIGHT GLOVES FOR 207

COMMON INDUSTRIAL CHEMICALS

Includes application charts and detailed data on selecting sizes, weights, and finishes.

INDUSTRIAL GLOVES Latex, Neoprene, Natural Rubber, Buna-N Compar Plastic

LINEMEN'S GLOVES Natural Rubber FINGER COTS Latex, Neoprene.

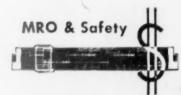


The Wilson Rubber Company

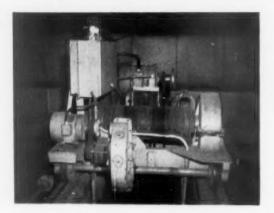
INDUSTRIAL DIVISION . CANTON 6, OHIO

A Division of Becton, Dickinson and Company

For More Information Circle No. 1025 on Inquiry Card-Page 17



CASE HISTORIES



Rebuilding Overhead Crane Saves \$3500

Engineers at a midwest welding company decided to rebuild the 20-ton overhead crane in the machine shop. They sought economy without sacrificing efficiency or smooth operation of the crane. They estimated that they saved at least \$3,500 by using standard acmotors together with Flexidyne, the dry fluid drive manufactured by Dodge. Without Flexidyne, they would have had to buy variable speed motors and far more expensive controls.

CIRCLE NO. 552 ON INQUIRY CARD-PAGE 17



Metallizing Saves Car Manufacturer Half Million Dollars in 5 Years

When crankshafts were improperly ground at the Kenosha, Wis., plant of American Motors, they were scrapped. Five years ago, the automobile manufacturer decided to use the metal spraying process of Metallizing Engineering Co., Inc. to salvage these imperfect crankshafts. With 50 crankshafts salvaged daily, American Motors has saved over \$600,000 since the Metallizing process was adopted.

CIRCLE NO. 553 ON INQUIRY CARD-PAGE 17



Grinder Downtime Reduced

One of the problems a company had with its grinder was the fact that the coolant lines had to be removed every 2 weeks for cleaning. The machine, used 16 hours a day to grind cast iron parts, became dirty very quickly. By substituting Cimplus cutting fluid for the soluble oil it had been using, the company has found that the machine is much cleaner and the coolant lines no longer have to be removed. Cimplus is made by Cincinnati Milling Products, Div. of Cincinnati Milling Machine Co.

CIRCLE NO. 554 ON INQUIRY CARD-PAGE 17

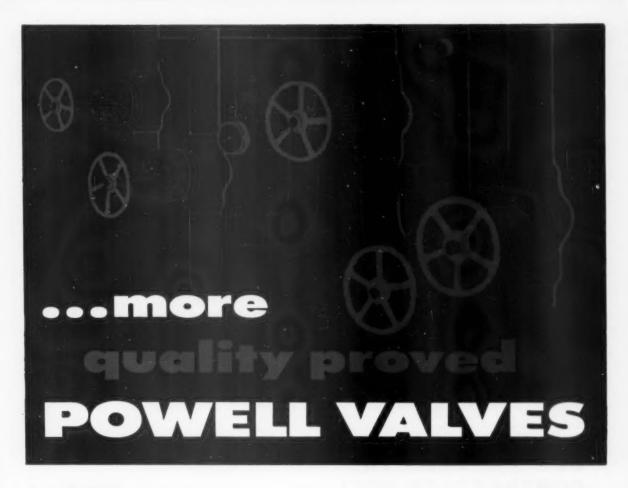




Fig. 110 - Bronze Regrinding Globe Valve for 200 W.S.P. Union bonnet.

Fig. 578—Bronze 125-Pound Swing Check Valve with Regrindable, Renewable Disc.



Fig. 1832—Stainless Steel Gate Valve for 200 Pounds W.P. Screw-in bonnet. Inside Screw Rising Stem.

Fig. 2201—175-Pound W.O.G. Semi-Steel Lubricated Plug Valve. Single Gland type.





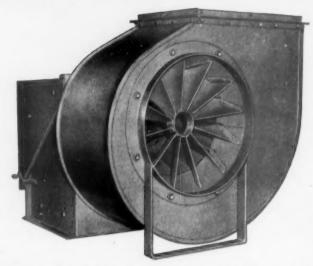
made with quality proved materials

Consult your Powell Valve Distributor for full facts about quality proved bronze, iron, steel, and corrosion-resistant valves. For every flow control problem—there is a Powell Valve to solve it ... better.

THE WM. POWELL COMPANY, CINCINNATI 22, OHIO . . . 111th YEAR

For More Information Circle No. 1015 on Inquiry Card-Page 17

VENTILATION?



"Buffalo" Belted Vent Set with all-weather drive cover for roof or other outdoor installation. Note inlet guide vanes, which reduce turbulence, providing more quiet, efficient air handling — exclusive with "Buffalo". In sizes for 500 to 20,000 cfm deliveries.

BUY THE FANS THE CONTRACTORS USE!

When you pick "Buffalo", you're getting fans that have proved themselves in many of the country's biggest and finest installations. And when you pick "Buffalo" Belted Vent Sets, you get all-around ventilating fans that can be installed indoors or outdoors — that are quiet, durable and efficient — that cannot be overloaded, regardless of duct conditions —whose capacity can be varied *after* installation. In short, fans that will justify your choice years and years after purchase.

Why take a chance on flimsy or temporary fans for a small first-cost advantage? "Buffalo" Belted Vent Sets cost *less*, measured by total costs over the years. Write for Bulletin 3720 and see the "Q" Factor* construction that makes these fans your safest and most satisfactory buy.

*The "Q" Factor — the built-in Quality which provides trouble-free satisfaction and long life.



BUFFALO FORGE COMPANY

BUFFALO, N. Y.

Canadian Blower & Forge Co., Ltd., Kitchener, Ont.

VENTILATING AIR CLEANING AIR TEMPERING INDUCED DRAFT EXHAUSTING FORCED DRAFT COOLING HEATING PRESSURE BLOWING

For More Information Circle No. 1073 on Inquiry Card—Page 17

Plastisol Spray Costs Less Than Sheet As Tank Lining



Massive storage tanks are now protected against corrosion, abrasion and contamination of the materials stored by General Coating Co., Woodbridge, N. J., with Unichrome 5300 sprayable plastisol. The company substituted this Metal & Thermit product for the sheet linings, previously used, because it provides superior adhesion, longer life and easier maintenance. Labor costs are far less for spraying the material than for cutting and fitting sheet lining, especially for intricate corners.

Circle No. 555 on Inquiry Card-Page 17

Rubber Dock Bumper Prevents Damage to Trailers, Dock



A year ago, an express company installed a rubber bumper on a portion of a truck dock instead of traditional planking, which was used on the rest of the dock. The wooden planking is being replaced while the rubber fender, a product of Goodyear Tire & Rubber Co., is still performing satisfactorily. The soft rubber cushion prevents load shifting and damage to truck trailers and dock. Downtime for maintenance of dock and facing has been eliminated.

Circle No. 556 on Inquiry Card-Page 17



A typical Murray drilling rig powered with 220-hp, LRO Waukesha and 230-hp, V-12 Le Roi engine.

How a steak dinner saved me \$1,000 a day!

by L. D. Murray, Murray Drilling Co., Houston, Texas

"Engine failure due to overheating used to be a big problem when I was drilling in West Texas...downtime was costing me as much as \$1,000 a day.

"Conditions were the worst I've ever encountered before or since. There were no prevailing winds to head the engines into. We were drilling 13,700-foot wells at an altitude of 4,200 feet and temperatures often ranged upwards of 100°. Consequently, our engines were constantly running well above the boiling point and at times they'd pull the mercury down to 9 or 10 inches. You can guess the rest... with expenses running about \$25,000 a year on each of six engines, we were not exactly getting rich.

"Well, one day I told a friend of mine about my engine troubles, and he told me if I'd buy him a steak he'd solve my problems. So I bought him that steak (it was even big by Texas standards), and he told me to try Union's T5X Motor Oil... just that and nothing more. So before we'd finished lunch, I ordered five barrels of T5X sent out to the rigs.

"From that day on, our engine troubles were over. Water temperatures held at 190° and oil consumption dropped from 10 gallons to 1, sometimes even half-a-gallon per day. Instead of changing oil every Sunday morning, we found we could run T5X Motor Oil 500 hours, changing it and the filters every third or fourth Sunday. And would those engines deliver on T5X! If I had to shut one down for any reason, the other two would pull the load.

"To make a long story short those engines stayed on the line for three years after that, using only T5X, and the only expense aside from routine maintenance was an occasional tuneup. I think that Union T5X is so far ahead of any other motor oil, it's impossible to compare them."

What more can we add except to remind you that T5X, the *amazing* purple motor oil, is immediately available from your nearby Union Oil representative.

UNION OIL COMPANY



Les Angeles: Union Oil Bldg. • New Yerk: 45 Rockefeller Plaza • Chicago: 1612 Bankers Bldg. • Philadelphia: Eastwick Ave. 8 Edgewood St. Dallas: 313 Fidelity Union Life Bldg. • Kansas City, Me.: 612 W. 47th St. New Orleans: 644 Nat I Bank of Commerce Bldg. • Besten: 214 Harvard Ave

For More Information Circle No. 1009 on Inquiry Card-Page 17



MOST WANTED — that's right — because the G P line includes gate, globe, and angle type valves having seats faced with HAYNES STELLITE* alloy or other hard facing alloys for greater seat-wear resistance . . . at no extra cost!

Hard faced seats, in combination with precision finished, selectively hardened discs and wedges give these valves amazing resistance to erosion, corrosion and galling. That's why they are setting new standards of performance in steam, water, oil, or gas services at the recommended pressures and temperatures.

Get longer, drop-tight, service life with minimum maintenance by specifying Vogt G P Valves. Available in a complete range of sizes from \(^1/4''\) to 2'' and rated 800 pounds at 850°F. and 2000 pounds at 100°F.

HENRY VOGT MACHINE CO. P. O. Box 1918 - Louisville 1, Ky.

SALES OFFICES: New York, Chicago, Cleveland, Dallas, Philadelphia, St. Louis, Charleston, W. Ya., Cincinnati, San Francisco

DROP FORGED STEEL

Vogt





For More Information Circle No. 1019 on Inquiry Card-Page 17

Lubricant Bearing Life Extended 8 Times



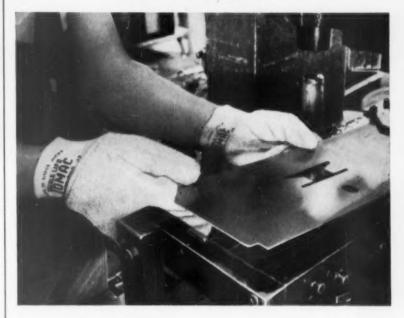
The bearings of the pattern carriages of the shell molding machines used by the Production Pattern & Foundry Co., Chicopee, Mass., in its gray iron foundry have to stand rugged service constantly fluctuating temperatures ranging at 30 to 50 second intervals from 900 F to 400 F and back again. With ordinary petroleum-based lubricants, the life of these bearings was only around 50 hours. After a change was made to a mixture of "Oildag," a colloidal graphite dispersion, made by Acheson Colloids Co., and D.T.E. No. 10 oil, they stand 400 hrs. of uninterrupted service. Circle No. 557 on Inquiry Card-Page 17

Heat Pumps Reduce Cost of Heating and Cooling

The new Equitable Savings & Loan Building in Portland, Ore., uses a Trane Company heat pump system for year-round space heating and air-conditioning. The entire building, embracing an air space of 2,275,000 cu. ft., is heated at a yearly cost of \$774 for electrical energy, against \$3,430 if the building had been oil-heated. Total heating costs, including labor, etc., average 2.1¢ a sq. ft. compared with 7.74¢ for five Portland buildings heated conventionally. Cooling costs average 9.2¢ per sq. ft. against 1.9¢ for an average office.

Circle No. 558 on Inquiry Card-Page 17

GLOVE COSTS too high?



Lower them . . . with the

COST-REDUCTION PLAN

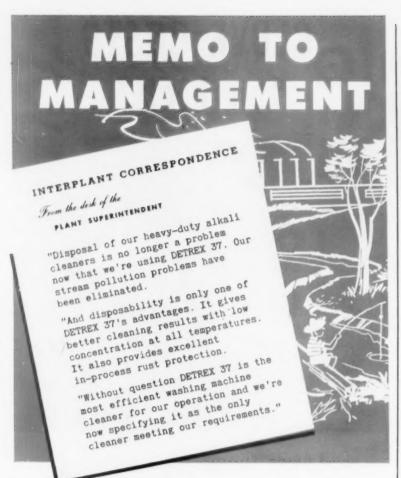
Many large industrial glove users have found this plan gets results. Send for the free booklet illustrated. It describes the plan and gives striking evidence of its success.

JOMAC INDUSTRIAL GLOVES

Plants in Philadelphia, Pa., and Warsaw, Ind. In Canada: Safety Supply Company, Toronto In Europe: North-Jomac Ltd., London, W1



For More Information Circle No. 1020 on Inquiry Card-Page 17



ALL-PURPOSE DETREX ALKALI CLEANERS MAKE CLEANING OPERATIONS ECONOMICAL AND EFFICIENT

In addition to DETREX 37, DETREX manufactures a metal cleaning compound to meet every requirement in this field. Without obligation, a DETREX representative will analyze your specific cleaning application. Drawing from his experience and the wide range of DETREX water-soluble metal cleaning compounds, he can then recommend the one that will guarantee maximum efficiency in your metal cleaning operation.

DETREX service continues beyond the initial sale with regular checks on product performance and efficiency. Only DETREX provides such complete coverage—from recommendation of the proper method through installation to periodic counsel and service.

This "One-Source" efficiency has made DETREX, pioneer in the metal cleaning and processing field, the recognized leader. Let us show you how DETREX can recommend and service the most efficient methods, materials and machines to meet your requirements. Write today for information on increasing efficiency at lower cost.

DETREX

CHEMICAL INDUSTRIES, INC.

For More Information Circle No. 1021 on Inquiry Card-Page 17

11

Pole-Type Construction Slashes Building Costs



Pole-type construction, relatively new in industry, solved an emergency storage problem at low cost for the Princeville Canning Company last summer. Needing additional storage space in a hurry, management called in a commercial pole builder. He put up a durable pole building, 40' x 60' in a week at half the cost of a conventional structure which is usually not less than \$4.00 a square foot. In this building, poles treated with Dow Chemical's anti-rot pentachlorophenol were placed in the ground at the building's perimeter and at interior strategic locations.

Circle No. 559 on Inquiry Card-Page 17

Magnetic Trap Protects Pump from Tramp Iron

Alkyl - aryl - sulfonate slurry, brought in by tank car, is one of the raw materials used by B. T. Babbit, Inc., to manufacture detergents at its Albany, N.Y., plant. The suction pump used on the line unloading the slurry frequently broke down because tramp iron and other foreign bodies damaged working parts. One of Eriez Mfg. Company's permanent magnetic traps, the 3" model B Ferrotrap was installed on the line ahead of the pump. It is removing approximately 10 lb of tramp iron and scale every month. Downtime for pump maintenance has been virtually eliminated. The pump performs better, according to Babbitt officials, and "valuable support has been given to our quality control program".

Circle No. 560 on Inquiry Card—Page 17
For More Information Circle No. 1188
on Inquiry Card—Page 17→

PURCHASING



Here's convincing proof that gaskets of Garlock 662 can stand varying climatic conditions without drying, shrinking, or hardening. The gaskets illustrated were subjected to a 24-hour alternating wet and dry test for weeks, then conditioned at room temperature. As the photo and chart at right show, 662 gaskets returned to their original shape and to within 1% of their original thickness. Competitive types hardened, twisted, and shrank as much as 8%. No wonder so many companies are specifying 662 for use against gasoline, water, and oil at temperatures up to 300°F. It is approved by Underwriters' Laboratories, Inc., for use against hazardous liquids.

And longer-lasting 662 Gasket material is only one of "the Garlock 2,000" . . . two thousand styles of gaskets, packings, and seals to meet all your needs. It's the only complete line. It's one reason you get unbiased recommendations from your Garlock representative.

THE GARLOCK PACKING COMPANY, Palmyra, New York

For Prompt Service, contact one of our 30 Sales Offices and Warehouses throughout the United States and Canada

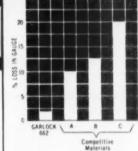


Chart shows loss of thickness after alternating wet and dry exposure tests. Garlack 662 returns to within 1% of original thickness. You'll prove that No. 662, made from a cark paper hase impregnated with a synthetic rubber, is dimensionally more stable than competitive products.

this folder AD159 which completely describes how these Wet and Dry Tests were made . . . it also contains actual samples of 662 Gasket material before and after testing.



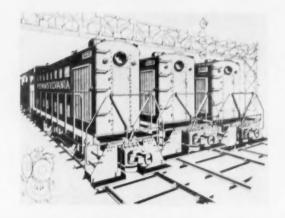




Packings, Gaskets, Oil Seals, Mechanical Seals, Rubber Expansion Joints, Fluorocarbon Products



CASE HISTORIES



Diesel Starting Batteries That Need No Water

Three Diesel switching engines on the Pennsylvania Railroad are equipped with C & D "Slyver-Clad" starting batteries. They have not had to be watered in more than 16 months. This is because these units are not the usual type of lead-antimony plate batteries: they have the new type "lead calcium" plates. These batteries are free from the customary antimony "poisoning" which shortens the life of lead-antimony batteries.

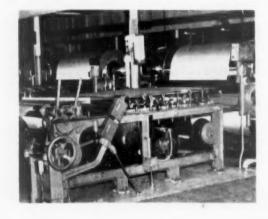
CIRCLE NO. 561 ON INQUIRY CARD-PAGE 17



Modernization Lowers Fuel Costs 19%

At its Products Division, South Bend, Ind., Bendix Aviation has drastically modernized its power system. The firm replaced two 511 hp boilers with two 80,000 lb/hr spreader stoker fired units. A 500 ton overhead bunker and a coal elevator-conveyor system were installed. Today fuel costs at Bendix are down 19%, efficiency has been boosted from 70% to 82%, maintenance costs are 80% less and availability has been from 50% to 96%—all as a result of the modernization program.

CIRCLE NO. 562 ON INQUIRY CARD-PAGE 17



Lubricant Saves \$1000 Worth of Drive Chains Yearly for Mill

Processing heat was ruining \$1000 worth of main-drive roller chains each year in the nine textile slashers of a large Georgia textile mill. Keystone No. 44 lubricant solved this problem. The new lubricant lasted more than 30 days instead of the usual 6 or 7 hours. Ten months after application, no new chains had been purchased and only 3 ft of spare link had been used for repair.

CIRCLE NO. 563 ON INQUIRY CARD-PAGE 17





MIDWEST "LONG TANGENT" ELBOWS COST NO MORE THAN OTHER ELBOWS THESE MIDWEST "LONG TANGENT" ELBOWS SAVED \$4121 IN PIPE

Here are 1227 Midwest "Long Tangent" Elbows (12", 14" and 16" standard weight) ready for shipment to a chemical plant. Each Midwest "Long Tangent" Elbow has a straight section on each end equal in length to 1/4 the nominal pipe size. Thus a 12" elbow saves 6" of 12" pipe while a 16" elbow saves 8" of 16" pipe. It doesn't take long to save a lot of pipe and a lot of money . . . in this instance \$4121.

But saving pipe is not the only advantage of Midwest "Long Tangent" Elbows. They often eliminate short nipples and their extra welds... save time and money in lining up and clamping pipe and fittings... slip-on flanges are more easily applied. For all the facts, write for Catalog 54.

MIDWEST PIPING COMPANY, INC. ASHEVILLE (BOX 446, SKYLAND, N.C.)

Main Office: 1450 South Second Street, St. Louis 4, Mo.

Plants: St. Louis, Clifton, N.J. and Los Angeles

SALES OFFICES:

ASHEVILLE (BOX 446, SKYLAND, N.C.)

BOSTON 27-426 FIRST ST.
CHICAGO 3-79 WEST MONROE ST.
CLEVELAND 14-616 ST. CLAIR AVE.
HOUSTON 2-1213 CAPITOL AVE.
LOS ANGELES 33-520 ANDERSON ST.
MIAMI 34-2103 LE JEUNE RD.
ONEIDA, N.Y.-282 NORTH MAIN ST.
SAN FRANCISCO 11-420 MARKET ST.

STOCKING DISTRIBUTORS IN PRINCIPAL CITIES

MIDWEST WELDING FITTINGS

MIDWEST WELDING FITTINGS Improve Piping Design and Reduce Costs



The use of Scott Wipers at the plant of the Voicewriter Division, Thomas A. Edison, Inc., at West Orange, N.J., ranges from machining operations, where oil absorbency is required, to assembly of delicate parts, where softness and freedom from lint are essential.

WIPER PROBLEM? Look what Edison did with Scott Wipers!

The changeover from wiping rags to Scott Wipers at the Thomas A. Edison plant eliminated a number of problems and improved production of Voicewriter dictating machines.

Lint from rags was a problem in the wiping of delicate parts—lint-free Scott Wipers solved this. Scratching of lucite parts was a problem—until eliminated by wiping and wrapping with Scott Wipers. And Scott Wipers have proved so versatile that they are now used for wiping jobs throughout the plant—in punching, plating, drilling and other operations.

Management no longer needs different wipers for different departments. Wiper inventory is simpler, wiper costs lower, laundering expense and trouble eliminated.

Scott Wipers are 2-ply paper, chemically treated for wet strength and "perf-embossed." This exclusive process* makes them soft and highly absorbent. Want more details? Call the local Scott representative or distributor. Or write Scott Paper Company, Dept. PW-75, Chester, Pa.



SCOTT PAPER COMPANY

Makers of the famous Scott paper products you use in your home. Consult your local TV schedules for Scott's program, "Father Knows Best."

*Patent pending





To 500F it's J-M Interlocked

because it cannot ravel or come apart

Made by an exclusive J-M process, Interlocked packing is braided from tough long-fibre asbestos yarns strongly interlocked in a solid integral structure. There are no jackets to wear through . . . no plaits to loosen. That's why it retains its strength and efficiency far longer than other types.

Interlocked also seals better. It is flexible and resilient, braided square for better contact and requires less gland pressure. Style 255 is effective against steam, hot or cold water, oil, weak acids and caustics. Furnished lubricated and graphited in ring and coil forms in sizes from 1/4" and up.

To 750F it's J-M Superheat

because it does not harden under high heat

Designed specifically for superheated steam between 500F and 750F, Johns-Manville's Superheat packing is made of highest quality pure asbestos cloth which retains its resiliency even after long exposure to high temperatures. Woven tight, spiral wrapped and then pressed square, this cloth forms a firm resilient structure of superior strength and wearability.

Style 167 Superheat is bonded with a special heat resistant compound. No excess is present to carbonize in use. Density is carefully controlled for minimum gland pressure. Furnished graphited in ring and coil forms in sizes from 1/4" and up.

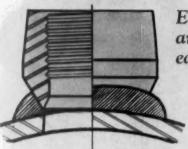
Your local J-M distributor carries full stocks of Interlocked and Superheat and other packings. Call him today or write Johns-Manville, Box 14, New York 16, N. Y. In Canada, Port Credit, Ontario.

Johns-Manville PACKINGS, GASKETS and TEXTILES



A New Line of Branch Connections

W-S COUPLETS



Economical and easy-to-install

Readily modified for small diameter installation



W-S Couplets are designed to function as universal outlet connections for tanks, process vessels and pipelines. They eliminate the need for large, expensive field inventories and costly delays in fabrication.

On most tank, and large piping installations they are used as received. On those few applications where attachment is to be made to a small diameter pipe, the W-S Couplet is easily modified by contouring the welding end with an acetylene torch to mate with the curvature of the pipe. Couplets are made with extra length and heavy wall to permit contouring without detriment to the threaded or socket end.

W-S Couplets are available in sizes ½" through 2", with screw-end or socket-welding dimensions ... also in a 90° elbow.

Send for Bulletin CP-1-57. Write to W-S Fittings Division, H. K. Porter Company, Inc., P.O. Box 95, Roselle, N.J.



HKP)

W-S FITTINGS DIVISION

H. K. PORTER COMPANY, INC.

For More Information Circle No. 1027 on Inquiry Card-Page 17

Special Drive Set-Up Saves \$718



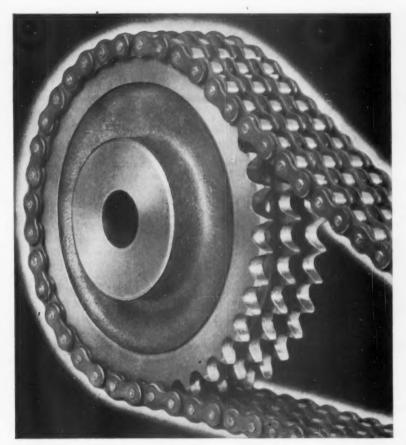
A manufacturer of protective coatings was seeking an improved drive for agitators to be installed in a new plant. He conceived the idea of placing reducer and motor outside the building and running shafts through the wall to each agitator. This enabled him to use standard motors and Dodge torque-arm speed reducers, instead of more costly explosion-proof motors, gearmotors and special wiring. Savings on the two drives added to \$718.00. Circle No. 564 on Inquiry Cord—Page 17

Preservative Saves \$1600 a Year on Belt Maintenance

A shoe manufacturer was plagued with belt slippage on power driven machines. This resulted in lost production and excessive charges for electrical power. The manufacturer treated his belts with Cling Surface's belt preservative. It has eliminated all slippage except unavoidable belt creep. Applied at the rate of about two tablespoonfuls per belt, once or twice a month, it keeps belts soft and pliable to deliver maximum power. At a cost of only \$266.00, it is saving \$1663 a year on power alone.

Circle No. 565 on Inquiry Card-Page 17

FOR MORE INFORMATION
ON PRODUCTS
IN THIS ISSUE
PLEASE USE
INQUIRY CARD—PAGE 17



TESTS PROVE ATLAS Electrolized DRIVE CUTS COSTS 100%

LESS FRICTION ... HIGHER TENSILE ... CORROSION RESISTANT

Out of the modern laboratories of Atlas come results on grueling torturetests of Atlas Electrolized Roller Chain. Proof that when used on power drives it outlasts others by as much as 100%... possesses a higher tensile strength than other corrosion resistant chain... has a lower coefficient of friction to reduce power losses.

Atlas Roller Chain, Sprockets and Flexible Couplings are precision matched to operate as a power team for peak efficiency. They are made to run quieter, last longer and require less maintenance. They are a power team to provide higher efficiency and longer life on every type of installation.

ATLAS CHAIN AND MANUFACTURING CO., P.O. Box 708, West Pittston, Penna.



ATLAS Electrolized ROLLER CHAIN

Available in all sizes for tiny timers to big, tough multiple chain drives. Regular or heavy duty . . . standard or extended pitch . . . steel, stainless steel, bronze or the new exclusive Atlas Electrolized Chain.



ATLAS Balanced SPROCKETS

Precision made to exact chain fit. Available in all sizes $\frac{3}{6}$ " pitch to 2" pitch . . . steel, stainless steel, bronze or Atlas Electrolized for langer life.



ATLAS FLEXIBLE COUPLINGS

Quiet running, ruggedly built for every drive. Available from stack—bore $\frac{1}{16}$ " to $3\frac{1}{16}$ " . . . O.D. up to $7\frac{1}{16}$ ".

GET. THE FACTS

ATLAS
POWER TRANSMISSION PRODUCTS

Please send data on how to increase efficiency with

POWER SAVING TEAM

TITLE

COMPANY

ADDRESS

STATE

For More Information Circle No. 1028 on Inquiry Card-Page 17





Graphite Lubricant Cuts Blade Forging Time To Save \$16,000

Utica Drop Forge & Tool Corp. precision forges jet aircraft turbine and stator blades at its Whitesboro plant. A compressor blade formerly required 4 blows from upset to finish with an intermediate heat and tumbling operation when a certain lubricant was used for the forging operations. After a change was made to colloidal graphite lubricants, manufactured by Acheson Colloids Co., only two forging blows are needed from original heat, effecting a saving of 3¢ on each blade or \$16,000 yearly on the production of this one particular part.

CIRCLE NO. 566 ON INQUIRY CARD-PAGE 17



Scrubber-Vacuum Saves 60% On Floor Care

A nationally known Ohio manufacturer suddenly realized that floor cleaning was still done by costly old-fashioned mop and pail methods. It was decided to replace these with a Lincoln scrubber-vacuum. Management found that the new system paid for itself in less than a year and floors were in the best condition ever. The unit offers fully automatic floor care. It spreads solution, scrubs, rinses and dries floor in a single operation.

CIRCLE NO. 567 ON INQUIRY CARD-PAGE 17



80% Time Saved on Production Line

One of the largest manufacturers of precision automatic tools has made its cleaning room part of its production line. It used to clean parts for final assembly by hand. It is now doing it by Hypressure Jenny. Typical of efficiency achieved is the case of an automatic part that used to require four hours to clean by hand and now takes only 45 min.

CIRCLE NO. 568 ON INQUIRY CARD-PAGE 17



Holyard "MAINTAINEER" in your picture to make maintenance

DOLLARS GO FARTHER

H. G. "Mike" Heller
One of Many Second Generation Hillyard Maintaineers.

"Young Mike" Heller has been a Hillyard Maintaineer for the past **7** years. When he surveys a floor and recommends restoration, treatment, or maintenance—

he speaks with the authority of his own intensive Hillyard training, and job experience as Floor Maintenance Specialist.

he draws on the experience of the entire Hillyard organization, accumulated during a half century of service and leadership.

he shares experience with the more than 150 other Hillyard Maintaineers, stationed in other cities of the U. S. A.

and he gets a special boost from the experience of his father, M. G. Heller ("Mike Senior"), who has a distinguished record of nearly 20 years as a Hillyard Maintaineer!

A HILLYARD PLAN CAN GIVE YOU REAL LABOR SAVINGS!

The few cents extra you pay for topgrade Hillyard materials will be the most profitable investment you ever made. The extra wear and extra quality in these materials make possible Hillyard streamlined floor treat-

ment methods and short cuts, which can reduce your floor maintenance labor as much as 50%. For example, you can:

eliminate the whole operation of rinsing with Hillyard Super Shine-All neutral chemical cleaner.

save 3 waxings out of 4 (required by inferior products) with Hillyard Super Hil-Brite 100% Carnauba Wax.

add extra slip-resistance and ease of maintenance with Hillyard Super Hilco-Lustre floor polish and renewer.

save frequent stripping and refinishing of wood floors with Hillyard Wood Finishes—they have an abrasion index as high as 3 times that of other products on the market.

end all need for waxing terrazzo and concrete with Hillyard Super Onex-Seal.

Why save pennies in materials—when you can save dollars in labor?

Ask for a Free Hillyard

FLOOR SURVEY.

and a complete floor treatment plan, serviced and supervised by your Hillyard Maintaineer. He will be glad to train your custodial staff in most efficient use of tools and materials to carry out the plan. Consider him your own expert consultant on floor maintenance problems.

"On Your Staff, Not Your Payroll"

Records show that 93c of every floor maintenance dollar goes for labor—here is your big chance to cut floor maintenance costs! Use Hillyard Products— Approved by Flooring Manufacturers and Contractors

ONLY 7c FOR SUPPLIES



HILLYARD CHEMICAL CO.

St. Joseph, Mo

Please have your nearby Hillyard Maintaineer show me how I can save real money on floor care.

Name Titl

Institution

Address

City

State



St. Joseph, Mo.



Seating for Productivity



A large electrical manufacturer found that he was getting substandard productivity on a particular operation. Efficiency experts were called in. An analysis of the requirements of this particular operation showed that the lack of efficiency was due to improper seating. A Toledo swivel chair was recommended to enable workers to swivel off their chairs to obtain stock, rather than have to push their chairs away from their work. The increased production from each worker paid for the new chairs in less than a year.

Circle No. 569 on Inquiry Card-Page 17



send for the world's most complete, illustrated catalog of

ELECTRIC LANTERNS

SAFETY

VALUABLE DATA:

The world's first comprehensive table of lamp and battery operating information

High power searchlights
All-purpose hand lights
Safety lights and lanterns
Flammable liquid SAFETY CANS
Dily Waste Cons



JUSTRITE Mfg. Co. 2061 N. Southport, Chicago, III.

CATALOG NUMBER 569-W5

For More Information Circle No. 1060 on Inquiry Card—Page 17 MAY, 1957

STOP

DAMPNESS DAMAGE
IN YOUR BUSINESS!



Westinghouse ELECTRIC Dehumidifier



DAMPNESS CAN COST YOU HUNDREDS of dollars in profits every year. Not only in damage, but customer good will. But, one low cost Westinghouse Dehumidifier lets you dry the air in a 10,000 cu. ft. area, protects valuable stores and tools from rust, corrosion, etc., ends costly production slow-downs!

RATED No. 11 In independent tests, the amazing Westinghouse Dehumidifier removed 31% more moisture at 44% lower cost than the 16 other brands tested. Uses no more current than a light bulb. Rolls on casters. 5-year replacement guarantee!

IDEAL FOR HOMES, TOO! Ends damp ruin, makes basements dry and usable! Ask your Westinghouse Appliance Dealer for a free trial or mail coupon!

SURE ... IF IT'S Westinghouse

Refrigeration Specialties Division - Springfield 2, Mass.

	E ELECTRIC CORP., Dopt. PG-loringfield 2, Mass.
Please send me	more information on your De- the name of my nearest Dealer.
NAME	TITLE
COMPANY	
ADDRESS	
CITY	TONE STATE

For More Information Circle No. 1030 on Inquiry Card-Page 17





Make 20% Slash in Steam Costs

Greenlee Bros. & Co. had been forced to operate its three old boilers at maximum capacity. This peak load meant that operation of outmoded equipment was sending fuel costs soaring so Greenlee replaced two of its older boilers with modern high capacity units including stokers, and up-to-date controls and other equipment. As a result Greenlee is now getting 10-20% more steam for each pound of coal and steam costs are down 18-20%.

CIRCLE NO. 576 ON INQUIRY CARD-PAGE 17



Switch from Rags to Wiping Cloths Saves \$1000

Last year MRM Co., Inc., manufacturer of filling machines and labeling equipment, switched from rags to Texel industrial wiping cloths and has saved more than \$1000. In addition to the cost saving, the company reports its workers find it easier to keep their machines and work areas clean. Texel wiping towels are produced by Industrial Wiping Cloth Co., Inc.

CIRCLE NO. 571 ON INQUIRY CARD-PAGE 17



Plastic Foam Insulation Cuts Air Conditioning Cost

A textile plant in the South decided to air condition its executive offices. Before putting in the air conditioning unit, all the various offices were insulated on the inside with Styrofoam, a Dow Chemical rigid plastic foam, available in board form. The cost of operating the air conditioning system is substantially lower because of the excellent thermal insulation qualities of the plastic foam, which keeps the hot outside air from penetrating through the walls. The plastic board was installed at low cost with wood working tools.

CIRCLE NO. 572 ON INQUIRY CARD-PAGE 17

For More Information Circle No. 1031 on Inquiry Card—Page 17→



40% stronger

than standard belts!

Where more driving power is called for, switch to Powerflex Hi-Capacity V-Belts. These new premium belts can step up the drive capacity of "under-belted" drives by as much as 40%.

If your present belts are being stretched beyond their take-up allowance...or if you're going to replace worn or damaged pulleys... change to Powerflex Hi-Capacity V-Belts. They permit you to use fewer belts and narrower sheaves . . . reduce drive costs.

Powerflex Hi-Capacity V-Belts are available in all standard sizes, and feature a special oil-resistant cover which prolongs belt life. Static conducting covers can be supplied. Order from your Thermoid Distributor, or write direct for complete information.



THERMOID COMPANY . Trenton, N.J.



There's a Thermoid Conveyor Belt



. and Thermoid Hose for every job.

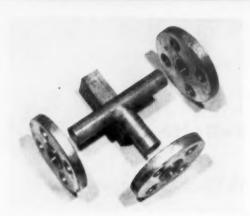




Oil Filters Cut Hydraulic Press Maintenance Costs 75%

Hydraulic presses used for bonding abrasive sanding belts were plaguing the Behr-Manning Division of Norton Co., Troy, N. Y., with periodic shut-downs. Abrasives were getting into the hydraulic oil and causing excessive pumpwear with frequent downtime for maintenance. An installation of Hilco Hiflow oil filters was made to reduce the cost of replacement parts and frequent oil changes. The immediate result was a 75% reduction in maintenance costs and in replacement parts costs.

CIRCLE NO. 573 ON INQUIRY CARD-PAGE 17



Insert Flanges Cut Cost Of Repairing Pipelines

Maintenance and repair of process piping often requires costly downtime because of the welding that's required. Now, however, it's possible to tie in new equipment and break into existing lines and headers without resorting to welding. Speedline fittings and flanges manufactured by Horace T. Potts Co., minimize time out of production and give strong leakproof joints. The tangential feature (extra straight section) on all Speedline formed fittings makes it possible to attach Speedline insert flanges by a simple expanding operation.

CIRCLE NO. 574 ON INQUIRY CARD-PAGE 17



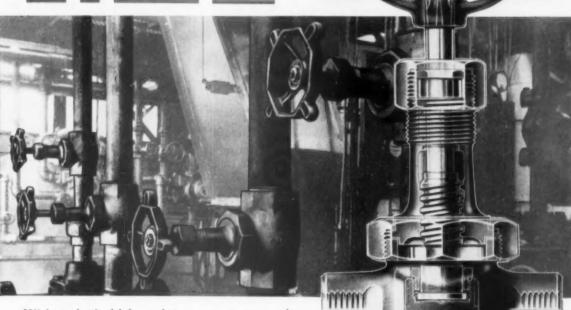
Plastic Tape Mask Saves Hours in Plating Gears

A midwestern manufacturer of precision gears for guided missile mechanisms cadmiumplates the steel gear, except for the teeth, the center hole and the outer hub diameter. These surfaces were masked by brushing on 3 coats of lacquer, which had to be scraped off after plating. The total operation took up to 225 minutes. It was decided to mask the gear teeth with a pressure-sensitive tape of polyvinyl chloride, made by Behr-Manning. Center hole and hub are still lacquered. Entire time for the masking operation has been cut to 40 minutes, a saving of 3 hours, or 80%.

CIRCLE NO. 575 ON INQUIRY CARD-PAGE 17

You Can't Find the Cost of a Valve

on a Price List



With today's high maintenance expense, the cost of keeping a troublesome valve in repair can dwarf its original price in a few months' time. The minute a maintenance man touches a wrench to a valve, its cost is often doubled. That's why the purchasing trend is to top quality—the longest-lasting; most dependable industrial equipment on the market. And in the valve field, that means Lunkenheimer . . . famous for quality and maintenance-free service since 1862. The Lunkenheimer Company, Box 360 Annex Station, Cincinnati 14, Ohio.

The cost of a Lunkenheimer Valve gets smaller...and smaller...and smaller... with each passing year of dependable service

LQ600-150 150 lb. S. P. 300 lb. W. O. G. 400 lb. W. O. G. 550°F. 100 lb. W. O. G. 550°F.

AT THE INFORM-A-SHOW

MAY 26 through 29
Stop in at Booth 408, where
Lunkenheimer will be demonstrating

HOW TO CUT MAINTENANCE

BRONZE · IRON · STEEL · PVC





THE ONE GREAT NAME IN VALVES

For More Information Circle No. 1032 on Inquiry Card-Page 17





Handshields

Complete protection against sparks, flash and dangerous rays of arc welding. Federal specification plates. Light-weight, roomy, adjustable, comfortable headgear, spring pivot for positive holding, easy raising and lowering. One-piece, rivet-less formed fibre, built to last.

Write for distributor's name and our catalog of Head and Eye Safety Equipment.



1475

For More Information Circle No. 1033 on Inquiry Card—Page 17

Curtains Reduce Ear-Splitting Metalworking Noises 85%



Chicago manufacturer of small precision-finished component metal parts that are incorporated in a certain household appliance was troubled by the sum total of noise emanating from cubicles where certain specialized metal working machines were operating. He installed Bemis Transwall curtains on both sides of the cubicles. This resulted in a decrease of 85% in the noise outside the enclosures. Also, there was a boost in labor morale as employees realized that management had their working comfort at heart.

Circle No. 576 on Inquiry Card-Page 17

Porto-Power Saves Time, Money

A. O. Smith Co. was faced with the problem of tightening car frames stacked on a flat car. Screw threads were tried but among other short-comings this method required 6 manhours to tighten the load. A solution had to be found that would require less time and expense. A Blackhawk Porto-Power hydraulic ram and a p-76 pump now gives controllable tension of 10,000 lb and tightens the load 11 in. in less than 60 seconds. A holding pin is then inserted and the ram and toe removed. The connection is practically tamper proof because the high bearing load makes it nearly impossible to hammer the pin out. Untying the load is handled the same way and in just as short a time.

Circle No. 577 on Inquiry Card-Page 17

MORE SKILL EVERY HAND



And more power! This rugged, dropforged CARBON STEEL wrench is heavier for more leverage, yet balanced to reduce fatigue. Has CRACKLE ENAMEL non-slip finish; bright heads; uniform openings fit snug. Numbers and sizes show clearly. Made stronger to last longer! The wrench that cuts—your tool replacement costs.

BILLINGS

Quality Tools & Forgings Since 1869

WRENCHES SHOP TOOLS

BUY 'EM FROM YOUR DISTRIBUTOR

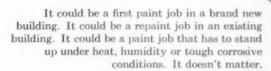
THE BILLINGS & SPENCER CO.
HARTFORD 1, CONN.

For More Information Circle No. 1034 on Inquiry Card—Page 17 Purchasing



Paint

most likely to succeed



The paint most likely to succeed . . . the paint that will do the best job at the lowest overall cost . . . is Barreled Sunlight ENGINEERED PAINT.

Let us explain the reasons

Barreled Sunlight ENGINEERED PAINTS are not like ordinary residential-type paints. They are heavy duty maintenance paints that are truly engineered to solve problems close to your purse.

They are "on-the-wall" engineered to give you more yardage, better hiding and lower cost per square foot. They are laboratory and plant engineered to look better and perform better. And they are "service" engineered to stand up under conditions that make less specialized paints fold up and peel away.

Maintenance engineers in charge of large industrial, institutional and commercial buildings . . . men who have dug down deep into the engineering side of painting . . . will tell you that, regardless of the problems involved, the paint most likely to succeed is Barreled Sunlight ENGINEERED PAINT.

PAINT ENGINEERING SERVICE

READY TO HELP YOU



Your Barreled Sunlight Paint Engineer is well qualified by training and experience to help you with any painting problem. He can show you ... right on your own wall ... how you can get a better paint job at lower "on-the-wall" cost. For a free Engineered Paint and Color Survey of your building, just write today to Barreled Sunlight Paint Co., 18-E Dudley St., Providence 1, Rhode Island.

Barreled Sunlight®

Engineered



For a Better Looking,
Longer Lasting Paint Job
At Lower Cost



HAMILTON RUBBER offers . . .



COMPLETE LINE . . . rubber hose for every industrial job.



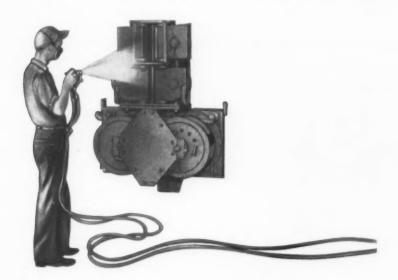
Write today for more information and literature.



ATLANTA . CHICAGO . HOUSTON . PITTSBURGH



QUALITY PRODUCTS . . . engineered for your specific requirements.



LOCAL STOCKS...call in your Hamilton distributor for quick delivery... good service.

RUBBER MANUFACTURING CORP. TRENTON 3, N. J.

A Division of Acme-Hamilton Manufacturing Corporation

INDIANAPOLIS

LOS ANGELES

NEW YORK

SAN FRANCISCO

For More Information Circle No. 1036 on Inquiry Card-Page 17





Magnetic Separator on Grinder Pays for Itself in 2 Months

A Chicago metalworking shop formerly required six hours each week to clean its surface grinder and used up 5 gal of coolant. The shop was induced to install a Branesdril magnetic separator. The benefits were immediate. The separator automatically removed all swarf, chips and other ferrous particles from the coolant allowing it to recirculate. As a result, there has been no downtime in four months and coolant used dropped to 1 gal per week.

CIRCLE NO. 578 ON INQUIRY CARD-PAGE 17



Exit a \$20,000 Yearly Corrosion Problem!

The cast iron parts in blowers handling corrosive flue gas, generated in a dry ice manufacturing process, at one of Liquid Carbonic Corporation's plants failed in six months to a year. They could not stand the attacks of SO₂-SO₂-NO₂ and water vapor. The yearly maintenance and replacement costs attendant on this amounted to about \$20,000. They were eliminated when General Blower Corp. installed a corrosion resistant pressure blower, with the outlet damper made of Hastelloy C steel. It is undamaged after 5 years.

CIRCLE NO. 579 ON INQUIRY CARD-PAGE 17



Paint Spray Gun Cleaning Costs Are Eliminated

A metalworking company in a midwest city solved the problem of lost production time on finishing operations while spray guns are being cleaned to remove paint hardened at the nozzles. A Protectoseal spray gun container was installed in the booth. This keeps nozzle tip of the gun immersed in solvent. This prevents paint from hardening at this point and eliminates daily cleaning. This saving has more than amortized cost of unit.

CIRCLE NO. 580 ON INQUIRY CARD-PAGE 17

CRUSHPROOF...LEAKPROOF...FLEXIBLE FOR HANDLING VOLATILES...GASES

PRESSURES TO 200 PSI... SWIVEL FLANGE FOR EASY INSTALLATION

Stainless steel lined metal hose for rugged flexibility . . . covered with tough rubber for absolute leakproof security . . . that's Penflex Suction and Discharge Hose. It's lighter in weight than any other comparable competitive hose . . . easy to handle with swivel flange that allows installation in any position without turning entire hose to meet bolt holes. End fittings are made of steel to meet specifications of refinery engineers.

Penflex Suction and Discharge Hose has been thoroughly tested and is used by leading refineries and chemical plants throughout the nation. It is proved and approved the all-purpose hose for oil, gasoline, solvents, corrosive chemicals and other volatiles and liquids. Available in sizes 2" to 12" I.D. in galvanized steel, stainless steel and bronze pressure carrier. Write for complete details.

PENNSYLVANIA FLEXIBLE METALLIC TUBING COMPANY
7218 POWERS LANE, PHILADELPHIA 42, PA.

Branch Sales Offices: Boston New York Chicago Houston Cleveland Los Angeles
and Distributors in Principal Cities

HEART OF INDUSTRY'S LIFELINES

FLEXIBLE TUBING, AUTOMATIC BARREL FILLERS, PNEUMATIC RIVET PASSERS, ACCESSORIES AND FITTINGS



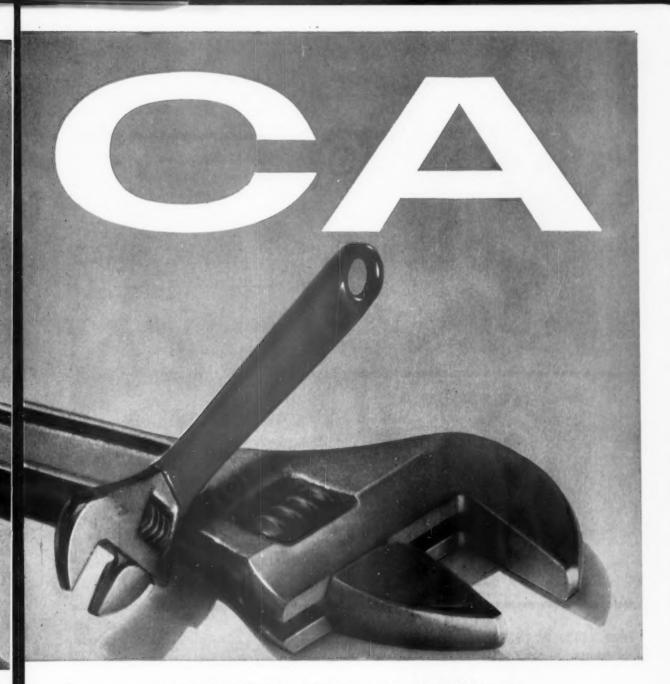
unconditionally guaranteed

USE UTICA and do the job with industry's finest quality hand tools . . . the tools preferred by expert mechanics and craftsmen. Utica pliers and wrenches are drop-forged for rugged durability! Induction hardened at the points of greatest wear—jaws and cutting edges—for extra strength! Extra long life! And like all Utica hand tools, they are **UNCONDITIONALLY GUARANTEED**. You must be satisfied. For further information, write for our 32 page illustrated catalog.

USE UTICA



Hallmark of Quality since 1895



OVER 1000 WRENCHES, PLIERS AND OTHER HAND TOOLS!

the tools the experts use!

UTICA DROP FORGE & TOOL DIVISION, KELSEY-HAYES CO., UTICA 4, NEW YORK

For More Information Circle No. 1038 on Inquiry Card-Page 17





Compressor Maintenance Cut 30% With Proper Lubricant

An aircraft manufacturer on the West Coast uses pneumatic tools for 90% of his operations. Proper functioning of the compressor is, therefore, important. Instead, sticking valves were once a constant nuisance. To cure the trouble, various conventional lubricants were experimented with. The solution was finally provided by Keystone No. 49 light oil. After six months' use of the lubricant, the compressor has functioned without downtime. Compressor oil feed has been reduced from 6 to 3 drops per minute.

CIRCLE NO. 581 ON INQUIRY CARD-PAGE 17



Wiping Material Cost Reduced 42%

Through the use of Scott Wipers at its Philadelphia plant, SKF Industries, Inc. has reduced wiping material costs 42%. One of these wiping applications is removing oil from outer races of cylindrical roller bearings prior to inspection. A unique embossing process contours the surfaces of Scott wipers, giving them thousands of tiny pockets that absorb oil and other contaminants from the bearings.

CIRCLE NO. 582 ON INQUIRY CARD-PAGE 17



29% More Nylon Hosiery Turned Out

John Hardy & Son, Inc., Pulaski, Tenn., manufacturer of ladies' full fashioned hosiery, reports a signal example of how air conditioning a plant increases productivity. On the Monday, preceding the full installation of an Airtemp air conditioning and humidity control system, girls in the seaming department seamed 225 dozen pairs of hose. On the following Monday when the new system was in operation, the same number of girls on the same machines seamed 444 dozen pairs. Also, machine maintenance has dropped 80%.

CIRCLE NO. 583 ON INQUIRY CARD-PAGE 17



JACK B. RINCKHOFF (right), Chief Engineer, Sulphuric Acid & Phosphotes Dept., Chemical Construction Corp., N. Y. City. Left, Michael De Piano, New York Cooper Alloy Representative.

RINCKHOFF OF CHEMICAL CONSTRUCTION answers 3 questions on Cooper Alloy Valves

Q. Mr. Rinckhoff, in specifying equipment for the H₂SO, plants that Chemico constructs around the world, what Cooper Alloy valve models do you buy most of?

A. Over 80%, I'd say, are OS&Y type gate valves, in sizes 1"to 8"

Q. What's your most important reason for

buying Cooper Alloy valves?

A. Availability. Your chain of distributors across the country and in remote parts of the world is of great importance to us. In foreign construction we have often specified Cooper Alloy because of this all-important availability.

Q. What about design and quality?

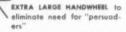
A. Vital. Valve design determines performance, and our specifications are rigid. As a construction company, we can't afford to jeopardize our reputation by installing questionable equipment. Cooper Alloy valves have passed our tough specs, and have my approval for all severe construction applications.

BOWED YOKE to avoid thread jamming on cooling

EXTRA DEEP STUFFING BOX holds minimum 6 turns Blue African asbestos

VALVE STEM integrally forged for strength, centerless ground for non-wear on packing

ROTATING DOUBLE DISC for positive closure, and to minimize galling



YOKE NUT REPLACEABLE without valve disassembly

2-PC. GLAND CONSTRUCTION to prevent scoring of stem

SWINGING EYEBOLTS for maintenance convenience

FAIRED BODY-BONNET FLANGES for equal stress and uniform gasket loading

A VALVE DESIGNED FOR STAINLESS!

The Cooper Alloy valve is not an adaptation of earlier brass and iron patterns. Cooper Alloy, with over 35 years of experience in handling stainless steel, created a valve designed to be cast in stainless! Check the Special Design Features shown at left.

As the little CA man below is saying: "You can tell a Cooper Alloy Valve as far as you can see it!" Write today for your copy of our folder "Design Factors In Stainless Steel Valves." The Cooper Alloy distributor near you will be glad to show you the complete line of Cooper Alloy valves and fittings, and their advantages. He can serve you promptly from local stocks.



Corporation . Hillside, New Jersey

THIRTY-FIVE YEARS OF STAINLESS STEEL PIONEERING

For More Information Circle No. 1039 on Inquiry Card-Page 17

DROP FORGED for Strength



HOT FORMED for Weldability

Hot formed steel is not subject to weld cracking, a chronic complaint on cold rolled products.

HEAT TREATED

All Thredolet fittings are heat treated after forging in accordance with A.S.T.M. A105.

ANTI-CORROSIVE LACQUER COATING

All Bonney fittings stay new and ready-to-use years after leaving our factory. Threads do not get clogged with grit as do oil-preserved fittings.

consider these features then specify and use BONNEY Thredolets and Sockolets for all small branch connections... and Weldolets for all large branch connections.

PENNSYLVANIA DIVISION

BONNEY FORGE & TOOL WORKS

For More Information Circle No. 1040 on Inquiry Card-Page 17

ALLENTOWN, PENNSYLVANIA

Mechanical Gages Improve Force Measurement



Two standard precision force measurement gages have greatly increased the accuracy with which Republic Aviation determines the adjustable artificial forces that must be built into hydraulically boosted aircraft control systems. The gages, built by the Hunter Spring Co. have replaced awkward, inaccurate "fishscales." Force, either tension or compression, is applied to the aircraft's rudder pedals and the resistance is read on the gage's dial indicator. The gages have capacities of 30 and 100 lb, respectively. Circle No. 584 on Inquiry Card-Page 17

Automatic Doors Amortize Their Cost in 6 Months

Cold storage warehouses present a special problem when merchandise is withdrawn or put into storage. The doors must be kept open a minimum of time to avoid substantial refrigeration losses. Inland Storage Company of Kansas City, Kansas solved the problem of fork truck drivers losing valuable time getting off their trucks to open manually operated doors. They installed Clark automatic doors which in six months pay for themselves in cost refrigeration that otherwise would occur.

Circle No. 585 on Inquiry Card-Page 17

SEE PAGE 17
FOR
INQUIRY CARD



WELDOLETS

THREDOLETS ®

SOCKOLETS ®

BRAZOLETS &

CARBON STEEL

or all services

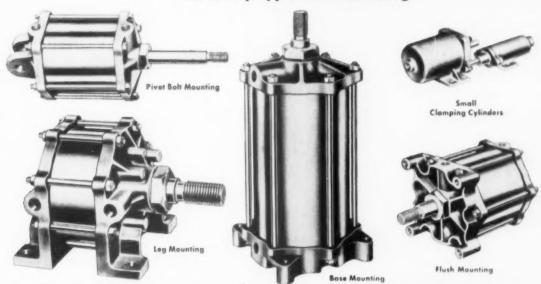
STAINLESS

ALLOY

ELBOLETS ®

Schrader... your one source for AIR CYLINDERS

push, pull, single or double-acting, with or without cushion
. . . for every type and mounting





For More Information Circle No. 1041 on Inquiry Card—Page 17

Only New HALLOWELL ERECTOMATIC. Steel Shelving



LESS TIME, MORE UNITS PER HOUR, lower costs with Hallowell ERECTOMATIC steel shelving. Maximum adaptability to meet changing conditions, too.

No matter what type of shelving you need—open, closed, bin units, ledge units, counter or cabinets—there's new Hallowell Erectomatics steel shelving to make your job easy. The unique built-in locking device* speeds assembly and rearrangement of shelving. To position a shelf—just slide it into place on the shelf supports, press the locks, and the shelf is locked. To reposition a shelf—release the locks, pull the shelf straight out, slide it straight in on its supports at the new location, and press the locks. It takes only seconds to do the complete job.

For complete information, see your Hallowell distributor. Or write Hallowell Shop Equipment Division, STANDARD PRESSED STEEL Co., Jenkintown 31, Pa.

*Patient gorded for

TWO MEN ASSEMBLED new Hallowell ERECTOMATIC steel shelving in just over 10 minutes. Closed unit was 36 in, wide, 18 in, deep, 7 ft. 3 in, high, complete with seven shelves. Standard models of other design required from 13-55 min. Table shows test results.

Brond	Time to Assemble (Min.)	Units Per How
Erectomatic	10.24	5.75
A	13.23	4.53
В	14.24	4.21
C	16.30	3.68
D	18.12	3.31
E	25.03	2.40
F	55.03	1.09







FAST ASSEMBLY. Just position the shelf supports, insert the shelf, and press the unique locking device, No tools or special instructions necessary.

gives you all these extra-value features



QUICK SHELF CHANGE. Just release the locks, remove the shelf and its supports, relocate the shelf, and press the locks. It takes only seconds.



STRAIGHT-IN, STRAIGHT-OUT SHELF CHANGE. No tilting to interfere with any other shelf. No time wasted unloading shelves or removing bin fronts, partial dividers, label holders.



INDEPENDENT SHELF POSITIONING. Each shelf is an independent unit. Can be removed and repositioned without disturbing any other part. All shelves in a rack can be aligned.



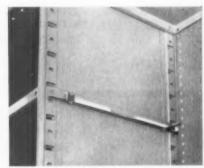
FULL USE OF SHELF AREA. No angles or tees, and beaded corner posts prevent waste of valuable storage space. No box guides are needed.



COMMON SIDE PANELS AND POSTS save assembly time. Also save material between adjacent units in a rack. And both back and side panels are one-piece.



BEADED POSTS AND FLANGED SHELVES prevent snagging of clothing or stored goods. Also prevent injuries from sharp, ragged edges.



FULL DEPTH SHELF SUPPORT. Load is distributed over full depth of shelf. No buckling is possible. Reinforcements can be added when they are required.



4 CLASSES OF SHELVES. Regular, medium, heavy, and extra-heavy shelf construction meets all load requirements. Made to government specifications. Extra-heavy shelf shown.

STANDARD PRESSED STEEL CO.

HALLOWELL SHOP EQUIPMENT DIVISION





Bearing Failure Eliminated, Production Increased

Roll neck bearings on paper machine dryer tools at the New Haven Pulp & Board Plant were failing at the rate of two or three a week. Then manual lubrication methods were replaced by a completely automatic centralized lubrication system. After more than a year of operation not a single bearing has been lost due to inadequate lubrication. In addition, lubricant consumption had been reduced 80% and downtime for lubrication has been eliminated completely.

CIRCLE NO. 586 ON INQUIRY CARD-PAGE 17



Abrasive Rolled Floor Plate Reduces Accident Hazard

A. W. Algrip abrasive-rolled steel floor plate has played an important part in Kimball Glass Co.'s record of 2 years without a lost time injury. Many improvements, including installation of the floor plate have been made at the Kimball plant in the last 10 years. During this period, lost-time injuries were reduced from 79 a year to 2 years without any.

CIRCLE NO. 587 ON INQUIRY CARD-PAGE 17



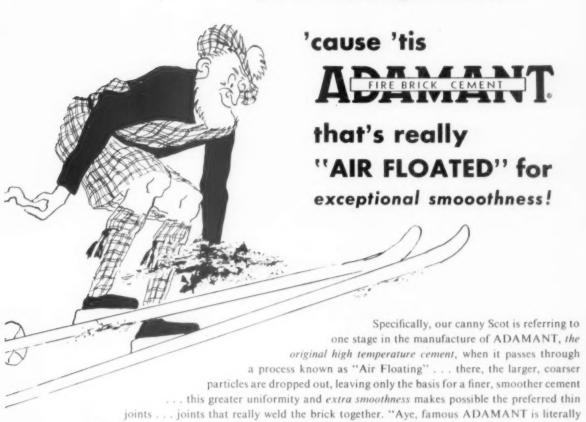
How to Increase Life of Sand-Blast Barrel 1200%

The Underwood Corp. formerly replaced the barrels of sand blasting machines, used to finish small typewriter parts, every three or four months. The barrels quickly wore as they revolved around the sand blast nozzle. Each barrel cost \$35.00 to replace. To reduce these costs of replacement, Underwood had all barrels spray-coated with a plastisol, Unichrome 53000, made by Metal & Thermit Corp. The plastisol lined barrels have stood up for 3 years at savings estimated at about \$385.00 per barrel for the 3 year period.

CIRCLE NO. 588 ON INQUIRY CARD-PAGE 17

Hoots Mon!

'tis a waste ta watch me goin' through the air—



unbeatable as a bonding agent . . . Money savin' ." says Scotty.

Write for Bonding Mortars bulletin #3 . . . Yellow pages of 'phone directory have your nearest ADAMANT Distributor.



ADAMANT and other ADA products

swanson and clymer sts. philadelphia 47, penna.

5788 Saved in V-Belt Costs

HOW SAVINGS WERE MADE: Dayton Preventive Maintenance and Cog-Belts* reduce replacement on three important drives.

COMPANY: Layne-Central Co., world's largest water development and well-drilling specialists.

Details: Rugged operating conditions were causing costly failures of standard V-Belts on our trailer-based well drilling rigs.

On the compressor drive, service was only 3-4 months. The pulsating load caused so much slippage that the pulleys had to be regrooved. The rig's main drive, a six-belt centrifugal mud pump, gave a year's service. We thought we should get more.

We also wanted to install a new high-pressure pump. To speed it up to the needed 2000 rpm, we had to use an extremely small pulley on the pump. In tests, wrapped V-Belts burned up in 30 minutes due to limited flexibility. We talked it over with Felix Tanner, Power Transmission Dept., Memphis Bearing and Supply Co. — the local Dayton Distributor. We decided to: 1) install Dayton Cog-Belts on all three drives; and 2) establish the Dayton Preventive Maintenance Program with instructions for the drilling crews in PM practices.

The rig has just returned to the shop for general overhaul after three years of work in all weather. The original Dayton Cog-Belts are still on the drives. They show no visible sign of wearing out.

Specific Savings: We have saved at least 12 times the cost of Cog-Belts for the compressor drive — more than \$625.00. In addition we saved downtime three times a year for V-Belt replacement, plus the cost of regrooving the pulleys.

On the main mud pump drive Cog-Belts gave us triple service life, or a saving of approximately \$153.00.

Installation of the high pressure pump gave us important drilling advantages. Cog-Belts gave us greater economy in power transmission than we could have received from any other method.

Conclusion: On these specific applications where exceptional demands are made on the V-Belts, Dayton Cog-Belts have proved their worth. They are being installed on similar drives on our other rigs.

Wm. W. aylor

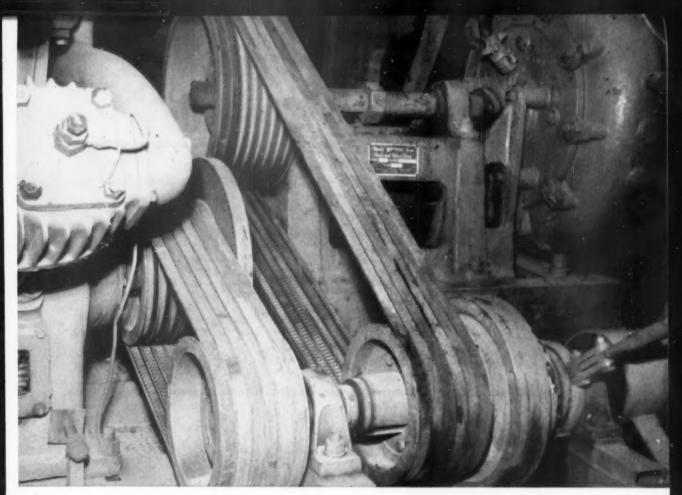
Maintenance Superintendent

Mr. Purchasing Agent: Here's how you can reduce yearly drive costs in your plant. First, get together with your Plant Engineer and the Dayton Distributor Salesman for a session on the cost-saving Dayton Preventive Maintenance Program. You'll see immediately how it will reduce costs in downtime, extra maintenance hours, etc.

Second, make sure your maintenance men have the complete line of Dayton V-Belts available to them. That way they'll get the right V-Belt for every job. To contact your local Dayton Distributor see "Belting" in the Yellow Pages. Or write direct to The Dayton Rubber Company, Industrial Replacement Div., Dayton 1, Ohio.







Six Cog-Belt compressor drive gave twelve times longer service than standard wrapped V-Belts. Pulsating loads caused wrapped belts to slip, grooving pulleys. Non-slip, die-cut raw edges of Dayton Cog-Belts transmitted power from jack shaft, outlasted standard belts 3-1.



Extreme flexibility was required to wrap around the 5" OD pulley on this high pressure pump, William Aylor (right), Layne-Central's Maintenance Superintendent, and Felix Tanner, who worked together on the drive, figured they needed a 3.6-1 ratio to pull the pump up to 2,000 rmp operating speed. Only Cog-Belts with 40% bonus hp plus extra flexible design could do the job, pulling at times up to 20 hp.

Savings of more than \$788.00 in V-Belt costs alone resulted from the installation of Dayton Cog-Belts on these three drives. Installed over three years ago on a Layne-Central Co. trailerbased, water-well drilling rig, the Belts are still in excellent condition as shown by this unretouched photo. Due to their economical operation under extremely difficult drive conditions, Cog-Belts have been installed on similar drives on other Layne-Central rigs.



Dayton Rubber World's Largest Manufacturer of V-Belts

@ D. R. 1957

DAYTON RUBBER COMPANY, INDUSTRIAL REPLACEMENT DIVISION, DAYTON 1, OHIO





Costs 90% Less to Keep Plant Floors Clean of Debris

The second largest producer of light metal castings on the West Coast, Gaines Co., Rivera, Calif., has 30,000 sq. ft. of floor area in its plant. It has cut sweeping costs more than 90% with the purchase of a power sweeper manufactured by the Modern Power Sweeper Co. With the unit, one man can sweep the floor of the plant in half an hour. To cover the area with hand sweeping, more than 15 men would be required to complete the job in the same length of time.

CIRCLE NO. 589 ON INQUIRY CARD-PAGE 17



Industrial Apparel Life Upped 50 Times

By supplying industrial apparel of 100% Orlon to their employees, Danbury Metal Finishing Co., Inc. of Danbury, Conn., is effecting a saving of \$275 a year per worker. It has found that these clothes outlast cotton and wool garments by 50 to 1. The company also says that since adopting Worklon acid and caustic-resistant clothing, production has increased significantly. Not being concerned with problem of clothes damage, the employees plunge more enthusiastically into their work.

CIRCLE NO. 590 ON INQUIRY CARD-PAGE 17



Electrical Apparatus Cleaned for \$2000 Less Yearly

A nationally well known electrical products manufacturer used to clean transformer tanks, electrical windings in rotating apparatus and the frames and brackets of electric motors by hand methods, before overhaul. He replaced the outmoded practice with a Hypressure Jenny cleaner and found that he was saving \$2000 annually.

CIRCLE NO. 591 ON INQUIRY CARD-PAGE 17

Dependability...

Be sure of it with

GRABLER

SQUARE "GEE" Pipe Fittings

The dependability and uniformly high structural qualities of GRABLER Square "Gee" Pipe Fittings are the result of more than 50 years of experience in progressive and modern manufacturing techniques in the production of pipe fittings. For dependability when you need it . . . where you want it, order GRABLER Package-Protected Square "Gee" Pipe Fittings from your wholesaler!



GRABLER

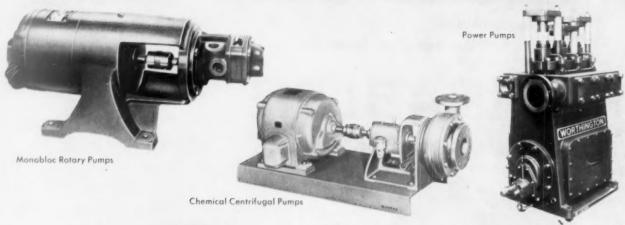
Manufacturers of the SQUARE GEE Line of Pipe Fittings

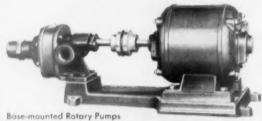
The GRABLER



Manufacturing Co. • 6565 Broadway • Cleveland 5, Ohio

You get more product,





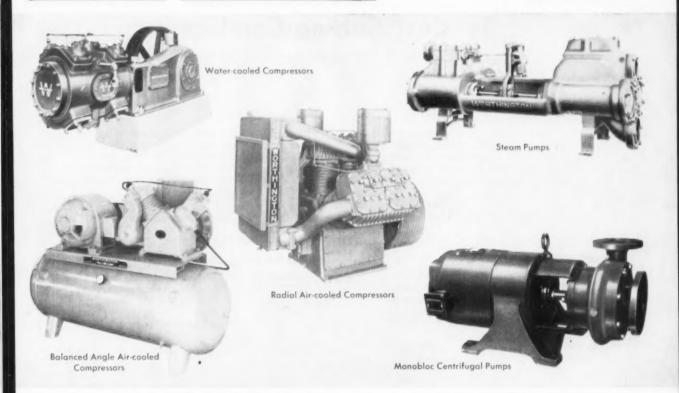
More Product. You never need compromise when you select from this complete pump and compressor line. Since your Worthington distributor carries the broadest line of air and fluid handling equipment on the market, you can depend on his unbiased recommendations. (Distributors have told us that they'd have to carry as many as four different lines to match Worthington for completeness.) He also handles top brands of accessories—an important consideration when buying a "packaged" installation.

WORTHINGTON

6 inside men \$426,438 worth of stock More Service. Mr. Average Worthington Distributor is way above average when it comes to service. It's no surprise to find that he has 10 customer representatives, 6 inside men and carries a whopping \$426,438 worth of stock. The 205 industrial distributors handling the Worthington line are located in 46 states of the Union. For the name of the one nearest you and a copy of the 1957 Pump and Compressor Catalog, write to Section PC-710, Worthington Corporation, Harrison, N. J.



more service from your



DISTRIBUTOR





Cost Cutting Catalogs

Always Pick the Right Fuel

Bulletin GO-200-B discusses gas-oil burners for jobs requiring dual fuels. Listed are input capacities, output ratings, and construction details required for installation of the four sizes of burners in the product line. Typical installations are also illustrated.

Mettler Co., Inc.

Circle No. 592 on Inquiry Card-Page 17

Buy the Right Glove

"Evidence from the Jomac Cost-Reduction Plan" shows how analysis of glove use has cut costs in typical industries. It describes how to weigh the three related factors of price, protection of the worker, and wearing qualities when buying work gloves.

Jomac Inc.

Circle No. 593 on Inquiry Card-Page 17

Coated Abrasives Save

A 10-page booklet is available which shows how several leading appliance manufacturers are cutting costs and improving finishes with coated abrasives. Included are case history presentations of several abrasive operations such as pre-finishing, weld grinding, removing imperfections, polishing, finishing, etc.

Minnesota Mining & Manufacturing Co. Circle No. 594 on Inquiry Card—Page 17

Cutting Floor Cleaning Costs

A line of self-propelled floor scrubbers is described in a 4-page bulletin. Each machine spreads solution, scrubs, rinses, picks up, and dries. Besides cleaner floors, the manufacturer claims longer floor life and lower costs with the scrubbers. Five sizes are available.

Lincoln-Schuleter Floor Machinery Co.

Circle No. 595 on Inquiry Card-Page 17

Foundry Supplies

A new two-color, six-page folder goes into detail on a line of foundry supplies. The line has recently been expanded to include all the coremaking systems, namely: conventional oil-sand cores; CO₂ gassed cores; and resin bonded cores.

Archer-Daniels-Midland Co.

Circle No. 596 on Inquiry Card—Page 17
For More Information Circle No. 1046

on Inquiry Card—Page 17
570

Latest in Insulation

Styrofoam, claimed to be the lightest of all insulation, is described in an 8-page bulletin. Made by expanding polystyrene about 40 times, the new material is a superior insulation with many uses. The bulletin provides engineering data. Specific applications are illustrated.

The Dow Chemical Co.

Circle No. 597 on Inquiry Card-Page 17

Longer Life Work Clothes

Fabrics made of the new synthetic "miracle" fibres are described in a new industrial apparel catalog. The fabrics are both acid and caustic resistant. As a result, they wear up to 50 times longer, according to the manufacturer.

Worklon Inc.

Circle No. 598 on Inquiry Card-Page 17

Protecting Floors from Loads

The most used part of a building is its floor. Small wheeled lift trucks concentrate loads on floors. As a result, according to a new 20-page bulletin, industrial plants need floors that can take a lot of abuse. The bulletin shows how to get them with steel grating.

Irving Subway Grating Co., Inc.

Circle No. 599 on Inquiry Card-Page 17

Pumps for Many Applications

Catalog 957 describes and illustrates a complete line of rotary pumps and hydraulic pump-motors. Rotary pumps are available in various capacities for the manufacturing, marine, petroleum and process industries. The hydraulic units are for machinery and various other industrial uses.

Geo. D. Roper Corp.

Circle No. 600 on Inquiry Card-Page 17

Valves for Severe Service

A new 4-page detailed circular describes two pressure classes of LQ600 bronze globe valves for a wide variety of services ranging from normal to exceptionally severe. Both classes of valve, the LQ600-150 and the LQ600-200, are made in eight sizes ranging from ¹/₄" to 2" diameters.

The Lunkenheimer Co.

Circle No. 601 on Inquiry Card-Page 17

What Rust-Oleum has saved for others is not half so important as the money it can save for YOU...

TRY

RUST-OLEUM®

on your rustable metal surfaces under your own conditions



You've got to try Rust-Oleum yourself to get the feel of it . . . to see how fast it covers, how easy it works, how smoothly it flows on. You'll see the big savings in time, labor and money when you apply Rust-Oleum 769 Damp-Proof Red Primer over rusted metal—eliminating costly surface preparations. You'll see how the specially-processed fish oil vehicle penetrates rust to bare metal where it stops rust to assure long wear. You'll say you've never used a coating that went on so easily and covered so well. Try Rust-Oleum soon—in your plant or around your home. Write for illustrated literature with color charts.

Rust-Oleum Corporation, 2434 Oakton St., Evanston, III.

RUST-OLEUM.

STOPS RUST!

Rust-Oleum and Stops Rust are brand names and registered trademarks of the Rust-Oleum Corporation



APPLY DIRECTLY OVER SOUND RUSTED METAL

No costly surface preparations usually required—just scrape and wirebrush to remove rust scale and loose rust—then brush Rust-Oleum 769 Damp-Proof Red Primer right over the remaining rust.



MANY ATTRACTIVE COLORS TO BEAUTIFY AS YOU PROTECT

Colors, colors, colors—they're yours in many attractive Rust-Oleum finish coatings—including Aluminum, White, Red, Gray, Green, Blue, Yellow, Black and many more.



DISTINCTIVE AS YOUR OWN FINGERPRINT

Rust-Oleum is exclusive — with a specially-processed fish oil vehicle in both primers and finish coatings. Accept no substitute. Prompt delivery from Industrial Distributor stocks.

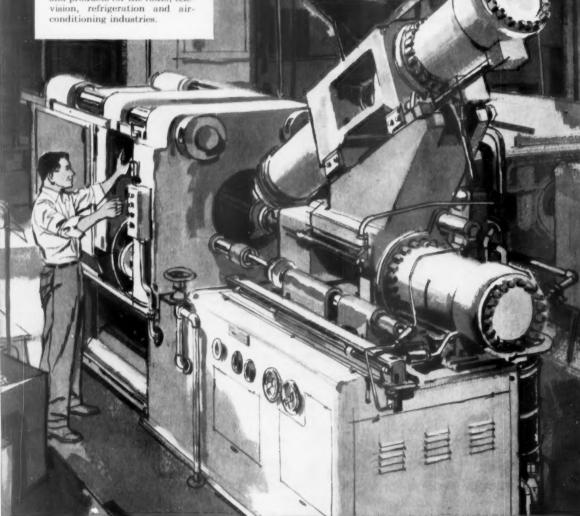
Write for special thirty-page report showing how Rust-Oleum penetrates rust to bare metal.





Hydraulic Pump

Amos Molded Plastics is one of America's foremost molders and finishers of thermoplastics. They produce a wide variety of parts and products for the radio, television, refrigeration and airconditioning industries.





Mobil SOCONY MOBIL

Leader in lubrication for over 91 years

in the Plastics Industry

Maintenance Cost Cut 44%

One of many maintenance savings achieved for Amos Molded Plastics with the help of Socony Mobil

Despite a 37% increase in production hours over a five-year period, Amos Molded Plastics has managed to reduce maintenance and production costs consistently. This leading plastics manufacturer credits Socony Mobil's program of Correct Lubrication with a good share of these savings.

To illustrate: Records show that in 1952 molding machine hydraulic pump repair costs ran \$135 per 1000 operating hours. Mobil engineers, working closely with the plant engineer, analyzed maintenance procedures... suggested

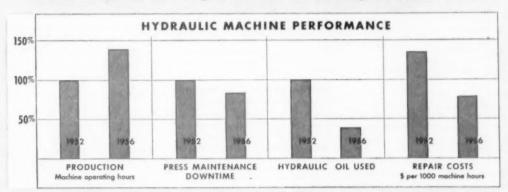
improvements. They helped set up lubrication schedules for each machine . . . recommended the correct Mobil product for all equipment. Today, in spite of higher labor and parts costs, repair expenditures have been cut to \$76 per 1000 operating hours . . . a reduction of 44%.

This is Correct Lubrication in Action—the only program that gives you the benefit of 91 years of lubrication knowledge... the services of more experienced lubrication engineers... top-quality products. It cut costs for Amos Plastics. Why not for you?

How Correct Lubrication Cuts Maintenance Costs

Graph shown here gives an accurate picture of results achieved for Amos Plastics through Mobil

Correct Lubrication. Some ways this remarkable record was accomplished are detailed below.



Machine downtime cut — Excessive downtime of molding machines was found to be due to oil leakage and oil contamination. Mobil engineers recommended improved oil seals... set up periodic laboratory analyses... proposed annual cleaning of hydraulic systems. This cut downtime 17%... saved \$13,800 over 1952 figures.

Oil consumption cut sharply—Socony Mobil maintenance clinics, conducted for plant's hydraulic engineers, taught them latest methods of reducing leakage. In addition, because Mobil hydraulic oils are of top quality they can be reprocessed and used indefinitely. Result—oil use was reduced 63%...\$4,600 saved yearly.

These savings and many more helped Amos Molded Plastics increase profits. For information on how Mobil Correct Lubrication can cut costs, improve production, contact your Mobil representative.

Correct Lubrication

A <u>proved</u> program to reduce maintenance costs

SOCONY MOBIL OIL COMPANY, INC., and Affiliates: Magnolia Petroleum co., general petroleum coff., mobil overseas oil co., inc.

Coat it, forget it...for years

Use Aluminum Paint with Reynolds Aluminum Pigment



These men are doing a job that won't have to be re-done for a good many years. The aluminum paint they're putting on is actually a tough shield that will stand up against rust and corrosion, and won't need attention for years.

A quality brand of aluminum paint applied as the manufacturer recommends assures extra years of protection. Often one coat will do the job.

Inside your plant or outside, paint made with Reynolds Aluminum Pigment can save metal or masonry from deterioration, cut maintenance. Also use it to give your plant the modern look of aluminum.

Aluminum paint reflects heat, keeps the buildings cooler in summer, slows evaporation of volatiles and reduces metal expansion. And it reflects light

to make interiors brighter, more attractive. Use aluminum paint, the modern finish, to keep your plant looking new. For more complete information write for the literature listed

For Low-Maintenance Roofs **Use Asphalt-Aluminum Coatings**

Built-up or metal roofs last longer, resist rust, keep buildings cooler when coated with asphalt-aluminum roof paints or coatings. The best of these roof coatings have this Warranty Seal, guaranteeing an approved vehicle and at least two pounds of pure aluminum pigment per gallon.



"By the makers of Reynolds Wrap"

See "CIRCUS BOY", Reynolds exciting dramatic series, Sundays on NBC-TV



Reynolds Metals Co P. O. Box 1800-PP,	Impany Louisville 1, Ky.
Please send me inf	
Name	
Company	
Address	
City	ZoneState

For More Information Circle No. 1049 on Inquiry Card-Page 17

Maintenance on Valves Eliminated



The Allied Asphalt & Mineral Corp., Dunellen, N. J., has virtually eliminated valve maintenance while obtaining easy valve operation under rough operating conditions. The company compounds special chemicals-plasticizers waxes, etc.-to customer specifications. Previously, valves jammed frequently because of foreign material in the lines. Packings and seat rings had to be changed every few weeks. By substituting Rockwell-Nordstrom lubricated plug valves. Allied has virtually eliminated valve maintenance. Jamming no longer occurs, since the plug shears off line debris.

Circle No. 602 on Inquiry Card-Page 17

Wrought Iron Pipes Chosen for Snow Melting System

At the new home of Procter & Gamble in Cincinnati a snow melting system has been installed underneath the sidewalk to parallel two sides of the company's building. The system is formed of grids of wrought iron pipe on 111/2" centers installed underneath the pavement. A. M. Byers wrought iron pipes were selected for the grid because of their corrosion resistance. Water and anti-freeze solution, heated from a gas-fired unit inside the office building will circulate through the pipes whenever icing conditions threaten on the sidewalk.

Circle No. 603 on Inquiry Card-Page 17



SIR LAUNCELOT LAUDS A LEADER!

Here's a distinguished member of the Royal Family of Fine Factory Seating - the popular Model 515 Adjustable Chair used in hundreds of laboratories and industrial plants for comfort, convenience, and outstanding stamina.

> Royal METAL FURNITURE MACHINE STANDS RECORD STORAGE SWIVEL CHAIRS STORAGE CABINETS FOREMAN'S DESKS TAB CARD SETTEES SHELVING SIDE AND ARM VERTICAL FILING

Dealers and Showrooms Coast to Coast

WARDROBES

Rust-resisting telescoping legs lock at 1" intervals for 17" to 25" or 24" to 32" seat-height adjustment. Back rest adjusts four ways-up, down, forward, backwardto give the 515 many healthful qualities of finest office posture-type seating. Here's a chair built to serve the sitter . . . to speed work, save you money.

Yours on Free Trial! We're so sure you'll like the Model 515, we'll deliver this chair for free trial. See what a difference correct posture makes , , . what Royal-built means in plus service.

A request on your business letterhead will bring you complete information promptly.



ROYAL METAL MANUFACTURING COMPANY

175 No. Michigan Ave., Chicago 1, Illinois, Dept. 22-F In Canada: Royal Metal Manufacturing Co. Limited, Galt, Ontario

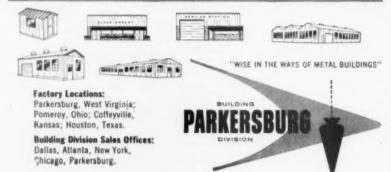


There is real economy and a world of good sense in the selection of Parkersburg top-quality pre-engineered metal buildings. These attractive precision-fitted units save construction dollars, time, maintenance and costly engineering ... unique "seven-fold" interlocking joints, provide rugged weather-tight construction. Parkersburg buildings can be moved or enlarged to meet space requirements ... all parts reach you ready for quick assembly.

Look into the advantages of Parkersburg metal buildings today . . . sized from tiny tool sheds to large factory buildings. Write to Department E-2.

60 Years of Successful Service

THE PARKERSBURG RIG AND REEL COMPANY Division of Parkersburg-Aetna Corporation Parkersburg, West Virginia



For More Information Circle No. 1051 on Inquiry Card-Page 17

Portable Pipe Threader Speeds Wiring Job



On a shopping construction job in Berkeley, Calif., the Carter Electric Co. only took ¼ man hours to fish 4/0 cables through 165 ft of 2½" conduit, having two 90° bends. They used a Lawco Jr. portable pipe threader weighing only 20 lb and measuring less than 27" in length. Had the project been done by the usual methods, it would have taken four to five man-hours. The unit can be plugged into any 110 v circuit. Circle No. 604 on Inquiry Card—Page 17

Colloidal Graphite Paste Ends Serious Health Hazard

For 15 years the Superior Mfg. Co. of Albert City, Iowa, a leading producer of greasing equipment, had been troubled with cyanide zinc plating solution leakage from numerous threaded pipe joints around the plating room. As the solution evaporated on the pipes, it formed cyanide salt crystals as a coating. These formed a health hazard to personnel as skin contact would have serious effects and chance ingestion of even a minute particle could be fatal. Every known pipejoint cement failed to stop the leaks until "dag" dispersion No. 204, a semi-colloidal graphite formulation was brushed on the pipe joints. This stopped leakage completely.

Circle No. 605 on Inquiry Card-Page 17

"LYON QUALITY DESIGN makes THE DIFFERENCE!"

STEEL FOLDING CHAIRS, for example. When you buy folding chairs, you're investing in comfortable, safe seating. Compare Lyon chairs by those standards before you buy.

This same quality design makes the difference in every one of the more than 1500 standard Lyon items, a few of which are shown below.

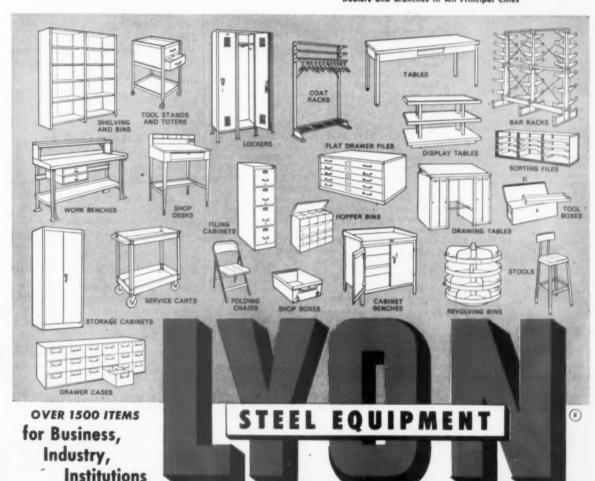
CALL YOUR LYON DEALER. He offers the world's most diversified line of steel equipment. Equally important, he can show you how to get the most for your money in terms of saved time and space.

We can manufacture special items to your specifications.

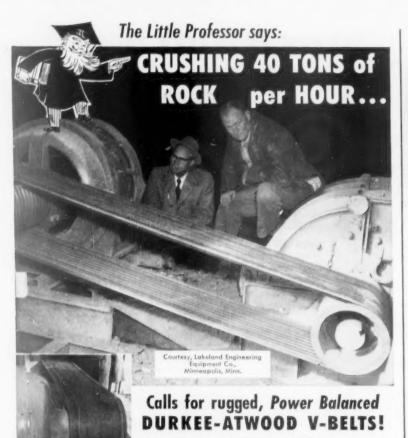


Factories in Aurora, III. and York, Pa. Dealers and Branches in All Principal Cities





For More Information Circle No. 1052 on Inquiry Card-Page 17



This vertically balanced set of 12 Durkee-Atwood heavy-duty V-belts at the Ochs Plant, is typical of Durkee-Atwood matched belt installations, D-A belts are matched vertically ... there's no "sag" error ... each belt is tested individually ... that's why D-A guarantees matchability.

Demanded by Ochs Brick and Tile Company of New Ulm, Minnesota is long belt life from the multi V-belts used in their heavy-duty crusher. That's why their plant superintendent, Don Schrepfer (at right in photo) selected Durkee-Atwood vertically balanced and matched V-belts...to keep brick production at 25,000,000 per year... serving building needs throughout North Dakota, South Dakota, Minnesota, Wisconsin, Illinois and Iowa.

Mr. Schrepfer's supplier, Oscar Ulrich (at left in photo), of Lakeland Engineering Equipment Co., Minneapolis, says: "Durkee-Atwood's dependable factory engineering service enables us to guarantee superior V-belt performance for our customers."

CALL ON DURKEE-ATWOOD. Let D-A's experienced distributor and factory experts help you with your power transmission problems. Find out today about this valuable service to industry... no obligation!

FREE!

Send for your free copy of "Handy Tips on V-belts and V-drives."

See your D-A distributor or write Dept. P-5, for catalog that includes conversion tables, engineering data, latest Rubber Manufacturers Association horsepower ratings, drive selections and helpful Do's and Don'ts of V-belt operation.



For More Information Circle No. 1053 on Inquiry Card-Page 17

Mounting Pads Stop Machine Vibration



Bolting shock-producing stamping presses, press brakes and other heavy machinery to concrete flooring to prevent "walking" has been discontinued at the plant of Berne Air King Corp. It was found that the method transferred shock, caused cracks in walls, and could interfere with balancing operations even as much as 500 ft away. Machine vibration is now isolated by mounting units on cross-ribbed neoprene Isomode pads. In addition, labor and shutdown time have been saved, since it is no longer necessary to break up the floor for bedding when machines are being installed.

Circle No. 606 on Inquiry Card-Page 17

Scale Model Leads to Lower Construction Costs

A leading manufacturer of pumps and motors recently completed a new plant. To determine the most efficient layout of machines and equipment, a 3-dimensional scale model was built and possible arrangements studied in advance of construction. By disclosing all the factors involved, the model, built by Knight Models, Inc., led to a rearrangement of work centers with a saving of several thousand dollars in electrical wiring alone.

Circle No. 607 on Inquiry Card-Page 17

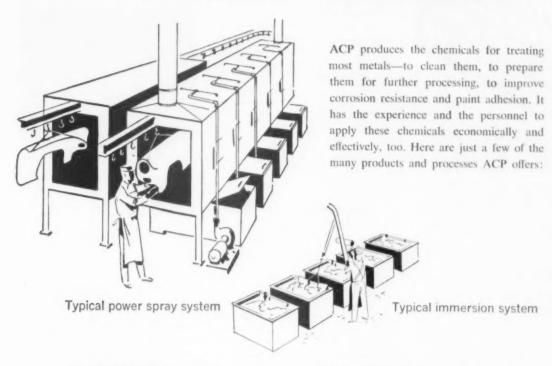
Cam and Bearing Wear Eliminated on Printing Presses

The barrel cam, cam track and follower rolls are critical lubrication points on each of the oscillating type, flat-bed printing presses

(Please turn to page 580)

ACP Chemicals and Processes for the automotive industry

treat metals fast and economically



ACP GRANODINE®—a phosphate coating process for steel which provides an excellent base for paint and greatly improves the corrosion resistance of the paint system.

ACP ALODINE®—an amorphous coating process for aluminum which protects both painted and unpainted metal and anchors the paint finish.

ACP PERMADINE®—a zinc phosphate coating chemical which forms a heavy oil-adsorptive crystalline coating on steel. This coating bonds paint or readily absorbs such rust inhibiting oils as ACP Granoleum.®

ACP DURIDINE®—a dual-action chemical which cleans and phosphate coats steel simultaneously. It carries off harmful surface dirt, oil and grease. It forms a coating which inhibits corrosion and provides an excellent base for the paint finish.

ACP DEOXIDINE®—a phosphoric acid metal cleaner which removes rust and organic soils, destroys rusters, prepares steel, aluminum, brass, copper and other metals for painting.

ACP METAL CLEANERS—Ridoline,® alkaline metal cleaner, and Ridosol,® solvent-detergent metal cleaner—remove metal preservatives and metal-working lubricants from metals in process.

ACP THERMOIL-GRANODINE®—a manganese iron phosphate crystalline coating chemical which improves the wear-resistant and antigalling characteristics of machined reciprocating ferrous elements. The coating, when oiled or painted, also inhibits corrosion.

ACP GRANODRAW® for steel and GRANO-DRAW SS® for stainless form an integral coating with the metal which facilitates cold mechanical deformation, improves drawing characteristics and lengthens die life.

Write for the "ACP GUIDE to the chemical treatment of metals."





AMERICAN CHEMICAL PAINT COMPANY, Ambler 41, Pa.

DETROIT, MICH.

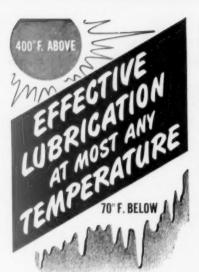
ST. JOSEPH, MO.

NILES, CALIF.

WINDSOR, ONT.

New Chemical Horizons for Industry and Agriculture

For More Information Circle No. 1054 on Inquiry Card-Page 17



The fact that LubriPlate Lubricants are able to meet extreme temperature conditions demonstrates the ability of these products to cope with the wide variations found in everyday industry. Besides this feature, LUBRIPLATE Lubricants possess attributes not found in conventional lubricants.

HIGH TEMPERATURES

LUBRIPLATE No. 930-AA.—Provides superior and protective lubrication for all types and sizes of machines operating at temperatures as high as 500°F. Possesses exceptionally high film strength and adhesiveness. Protects all metallic parts against rust and corrosion.

LOW TEMPERATURES

LOW-TEMP LUBRIPLATE—The outstanding multi-purpose grease type lubricant that will remain plastic at 70°F below Zero, yet has a Melting Point of 270°F. Resists water and acids—protects against rust and corrosion even from calcium chloride used on paved roads during winter months.

For nearest Lubriplate distributor see Classified Telephone Directory. Write for free "Lubriplate Data Book"... a valuable treatise on lubrication. LUBRIPLATE DIVISION, Fiske Brothers Refining Company, Newark 5, N. J. or Toledo 5, Ohio.



For More Information Circle No. 1055 on Inquiry Card—Page 17

(Continued from page 578)

used at Universal Match Corp. When the barrel cams started to squeal it was discovered that the cam track was flaked and galled and that the follower roll bearings were wearing excessively because the wiping action of the follower roll on the cam track removed the graphite lubrication. Micro-Fog lubrication, made by C. A. Norgren Co., was put in and the squealing stopped. Periodic inspection over several months showed little wear on the cam track and follower roll bearings.

Circle No. 608 on Inquiry Card-Page 17

Flex Section in Pipeline Saves Thousands

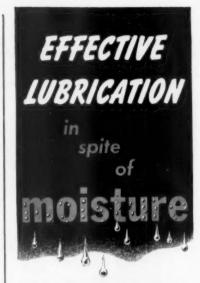
A manufacturer of steel kitchens receives its steam supply from a remote source through an underground main line several hundred feet in length. In this run of piping there was a joint which reduced pipe diameter from 8 in to 6 in. Each year in the spring, ground movement caused the reduction joint to break. A distributor for Flexonics metal hose products solved the problem by making a special flex section from a short length of Flexon RF-44 stainless steel corrugated hose, fitted with flanges. Ground motion no longer causes any trouble.

Circle No. 609 on Inquiry Card-Page 17

Rubber Dock Fenders Bring \$20,000 Yearly Saving

In the Southwest, \$12.5 million was spent recently on a new municipal dock. Rubber dock fenders were installed instead of conventional wooden stringers. As a result, it is estimated that \$20,000 a year is being saved in maintenance cost on stringers alone without considering the cost of possible damage to expensive ships and the basic dock structure. Goodyear Tire & Rubber Co. designed and installed the short-sectioned rubber fenders between the outer piling and the dock.

Circle No. 610 on Inquiry Card-Page 17



LUBRIPLATE 130-AA

affords machine parts and bearings real protection against rust and corrosion. It is a grease type lubricant that possesses the utmost in water and acid resistance. It has exceedingly high film strength. Due to the marked adhesiveness and water resistance of LUBRIPLATE 130-AA, it does not wash off readily, hence is the ideal lubricant in the presence of moisture.

TYPE OF YOUR MACHINERY, LUBRIPLATE LUBRICANTS WILL IMPROVE ITS OPERATION AND REDUCE MAINTENANCE

For nearest LUBRIPLATE distributor see Classified Telephone Directory. Write for free "LUBRIPLATE DATA BOOK"... a valuable treatise on lubrication. LUBRIPLATE DIVISION, Fiske Brothers Refining Company, Newark 5, N. J. or Toledo 5, Ohio.

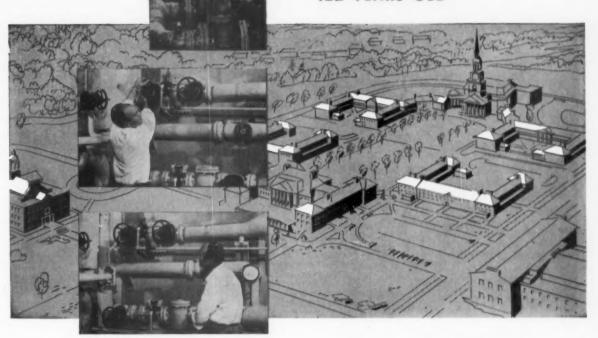


For Mare Information Circle No. 1056 on Inquiry Card—Page 17

PURCHASING

A brand-new college

122 YEARS OLD



New Wake Forest College campus at Winston-Salem, North Carolina. In 27 of the new buildings OIC Valves have been used exclusively. According to H. S. Moore, Supt. of Buildings and Grounds, OIC Valves have never created maintenance problems for him in all his experience.



and you see OIC Valves everywhere!

Wake Forest College has been transplanted 110 miles from its original site to Winston-Salem, N. C. Its new campus consists of 28 sparkling, modified Georgian buildings, and everywhere you look everything is crisp and modern . . . from its beautifully designed quadrangle to its very last valve.

If you're ever close to Winston-Salem, visit Wake Forest College and enjoy this spectacle of modern design and construction techniques. You may see ideas you'll want to duplicate even down to the very last OIC Valve . . . the always modern, ever dependable, accepted valve line.

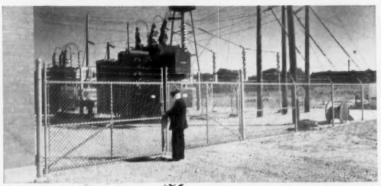
Architects: Larson & Larson, Winston-Salem, N. C. Consulting Engineer: Louis Bouvier, Winston-Salem, N. C. Materials Furnished by: Atlas Supply Co., Winston-Salem, N. C.

THE OHIO INJECTOR COMPANY

FORGED & CAST STEEL, BRONZE & IRON, LUBRICATED PLUG VALVES

How to Get More for Your Fencing Dollars...

PAGE Offers the Widest Choice to Best Meet Your Needs!



Wire Fence—since 1883

Your property protection should be and can be MORE than just a fence. It can be the RIGHT fence for you because you can make decisions from the widest va-

riety of choices available anywhere. Every part of your fence will be qualcontrolled by PAGE from metal billet to the complete, erected fence.

You can choose from -

- 8 Fence Styles
- 8 Fence Heights 4 Fabric Metals
- 2 Types Metal Posts
- 6 Gate Styles, Many Widths
- Single or Double Barbed Wire Arms
- Top Rail or Top Wire

Important Advantages for You

PAGE pioneered in providing a wider choice of long-lasting fence fabric metals. Each of them possesses characteristics which meet individual preferences or make it more suitable to meet certain climatic or service

GALVANIZED STEEL . PAGE fabric of this class is woven of time-proved basic open-hearth steel wire, hot-dip galvanized after weaving to assure long, reliable service.

ALUMINIZED STEEL . By a PAGE patented process a coating of commercially pure aluminum is bonded to steel wire to provide longer corrosion

Write or send coupon for full information. With it we will send name of Association Member nearest you.

PAGE PENCE	ASSOCIATIO	M, Dept. Po, Monessen, P.
Please send	me detailed	information
OR PAGE CI	HAIN LINK	FENCE

on PAGE CHAIN	LINK FENCE	the RIGHT
NAME	The second section of the section of	C
POSITION		
COMPANY		PROI SHEET MARKET

CITY, ZONE & STATE A PRODUCT OF PAGE STEEL & WIRE DIVISION, AMERICAN CHAIN & CABLE CO., INC. For More Information Circle No. 1013 on Inquiry Card-Page 17

resistance, yet its cost is comparable with fence fabric having shorter life expectancy.

ALUMINUM . Another material in the non-corrosive class. It will not rust nor will it discolor materially under unfavorable conditions. Because of the PAGE method of semi-flat weaving it has exceptional strength.

STAINLESS STEEL . This special chromenickel fence fabric is immune to practically all corrosive elements and in particularly advantageous near salt water and where the air is laden with smoke, sulphur or other factory emis-

MANY STYLES - MANY VARIATIONS Ready to meet your needs are 0 styles, varied by heights, gauges of fabric wire, units of supporting struc-ture, types of gates (all with welded frames) and barbed wire strands for added security.

ALSO VERY IMPORTANT . The superior quality of materials and the specialized production skills represented by all PAGE FENCE parts are matched by the capable planning and expertness with which your fence will be erected. The Association member firm nearest you will confer with you on all details, offer sound recommendations and submit cost estimates without obligation. This localized firm has continuing interest in every fence it



Natural Gas Engine Cuts Pumping Cost 65%

A textile plant in the South gets the voluminous water needed for its operations from deep wells dug on plant property. Electrical power used to operate the pumps. After installing a Le Roi F1500 engine to pump its 10 in. well, pumping costs were most substantially reduced. Operating on natural gas, the engine lifts 3000 gpm from 60 to 78 ft. depending on water table level, at a cost of \$0.50 per hour, compared with a former one of \$1.45. In 24 hours. the engine pumps on \$12 worth of fuel against former electricity costs of \$35.

Circle No. 611 on Inquiry Card-Page 17

Radiant Heating System **Ends Heat Loss**

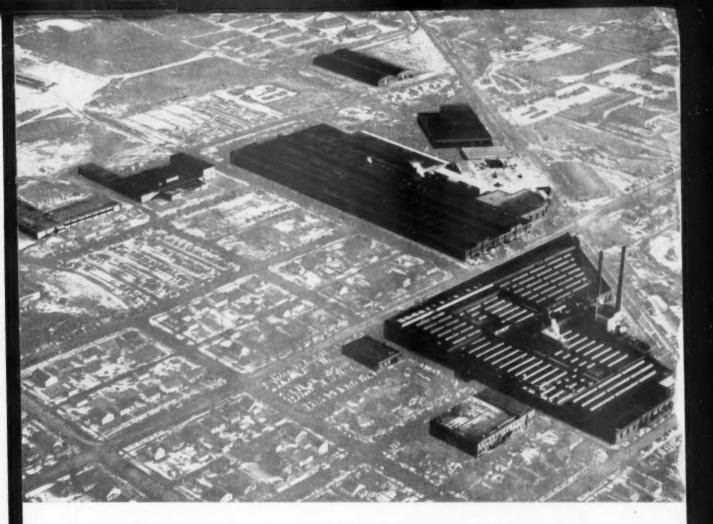
Loss of heat through a large window area in the main lobby of Pittsburgh's new multi-million dollar State Office Building has been almost completely eliminated through installation of a radiant heating system. Wrought iron pipe coils, made by the A. M. Byers Co. were installed to compensate for the heat loss through the spacious window area. Steam is piped to an exchanger from which heated water is circulated through the 3/4" wrought iron pipe coils. The piping system is covered with terrazzo.

Circle No. 612 on Inquiry Card-Page 17

Life of Parts Prolonged Three To Ten Times

Mather Spring Co., Toledo, Ohio, produces leaf springs for automobiles, trucks and buses. It applies a hard-surfacing coating of Haynes Stellite alloy No. 6 to secure more service from its tools and dies. Thus, a sizing arbor is now producing 7500 pieces against 2500 before hard-facing. This arbor must hold a 0.010" tolerance on the eye of spring ends. The life of hot forge forming dies used to make eyes for automobile leaf springs has been prolonged up to 1000%.

Circle No. 613 on Inquiry Card-Page 17 For More Information Circle No. 1001 on Inquiry Card-Page 17→ PURCHASING



Trane saves \$27,000 a year burning coal the modern way

Consult an engineering firm

Designing and building hundreds of heating and power installations a year, qualified engineering firms can bring you the latest knowledge of fuel costs and equipment. If you are planning the construction of new heating or power facilities—or the remodeling of an existing installation—one of these concerns will work closely with your own engineering department to effect substantial savings not only in efficiency but in fuel economy over the years.

facts you should know about coal

In most industrial areas, bituminous coal is the lowest-cost fuel available • Up-to-date coal burning equipment can give you 10% to 40% more steam per dollar • Automatic coal and ash handling systems can cut your labor cost to a minimum. Coal is the safest fuel to store and use • No smoke or dust problems when coal is burned with modern equipment • Between America's vast coal reserves and mechanized coal production methods, you can count on coal being plentiful and its price remaining stable.

As part of its current \$12 million expansion program at all locations, The Trane Company, La Crosse, Wis., a major air-conditioning and heating equipment manufacturer, has recently modernized its power plant. Steam generating facilities were changed over entirely to a coal-fired operation and a 70,000 lb./hr. boiler was added. Coal and ash handling is automatic.

Trane has found that burning coal the modern way pays off in several ways. Overall cost of steam generation is cheaper. Fuel supply is readily available and dependable. And fuel cost savings amount to 25% over the next most economical fuel, totaling about \$27,000 a year for the La Crosse plant alone.

For further information or additional case histories showing how other plants have saved money burning coal, write to the address below.

BITUMINOUS COAL INSTITUTE Southern Building • Washington 5, D. C.



CORDLEY OFFERS ALL THESE FEATURES... and many more!

- · Solid stainless steel splash-proof top
- · Squirt-proof bubbler jet
- Fully sealed refrigeration system
- 7-point thermostat
- Contamination-proof refrigerant coils bonded externally
- Extra service connections—for both glass filler and remote outlets
- Bubbler jets aimed for easy drinking – no neck craning
- · Attractive, adaptable styling
- · Generous 5-year Guaranty



There's a Cordley cooler to meet any drinking water requirements!

Valuable Free Bulletin . . .
"HOW TO SELECT A WATER COOLER"
Write Today!

CORDLEY & HAYES

443 Fourth Avenue, New York 16, N. Y.
For More Information Circle No. 1062
on Inquiry Card—Page 17

Air Conditioning Improves Machinery Performance

Victoria Vogue, Inc., produces powder puffs. For the purpose, a series of special automation machines have been exclusively designed and developed. Many parts of the intricate machines are extremely susceptible to temperature changes or high humidity. They are protected by a modern Airtemp air conditioning system. There has been no major breakdown, involving the special production machines, since the air conditioning was added.

Circle No. 614 on Inquiry Card-Page 17

Steam Traps Boost Laundry Press Output

To get more production out of an already highly efficient American Tiltor machine, a laundry replaced its conventional-style steam traps with Yarway impulse traps. Production of the machine immediately jumped from 100 to 130 units per hour. The steam traps help maintain constant temperatures on the presses. Also, when a trap needs service, the machine is only down for 10 minutes, instead of an hour.

Circle No. 615 on Inquiry Card-Page 17

Part Time Worker, Handles 35 Tons of Scrap per Month

Fast economical handling of daily scrap accumulation was a problem for the New Delphos Mfg. Co., Delphos, Ohio. The company makes galvanized sheets, roofing products, eaves, troughs etc. The scrap from these operations, averaging 35 tons a month, quickly cluttered up operational areas, affecting manufacturing efficiency. The solution was found in a scrap metal baler, made by the East Chicago Machine Tool Co. Occupying only 12' x 31/2' of floor space, it produces a scrap "briquette" weighing 100 lb, every 3 minutes, enabling one man on part time to handle 35 tons of scrap per month.

Circle No. 616 on Inquiry Card-Page 17

QUICK!

CALL THE
DELUXE DEALER—
WE HAVE A
SHELVING PROBLEM!



Your shelving problems can't possibly be this preposterous, but if you want to talk about them with an expert, call your Deluxe Steel Shelving dealer. He's nearby, ready to give onthe-spot shelving layout service. He will engineer efficient, flexible shelving installations and supply you with additional shelving racks as fast as you need them!

Only Deluxe shelving combines all these features:

- One-piece Bin-type Uprights for greater rigidity and faster erection
- Boltless adjustable shelf brackets
- Snap-in dividers for quick flexibility
- Factory reinforced shelves
- Coped shelf corners for increased capacity
- Low cost installation

Call your local Deluxe dealer or write for 56-page "Shelving Reference Manual"



DELUXE METAL FURNITURE COMPANY

A Division of Royal Metal Mfg. Co Warren, Pa.

For More Information Circle No. 1066 on Inquiry Card—Page 17 PURCHASING

Super Service V-Belts 40% More Pull!

HERE'S THE NEW HEAVY-DUTY V-belt by Gilmer —built with load-carrying cords of "Dacron*" and easily identified by a distinctive red jacket!

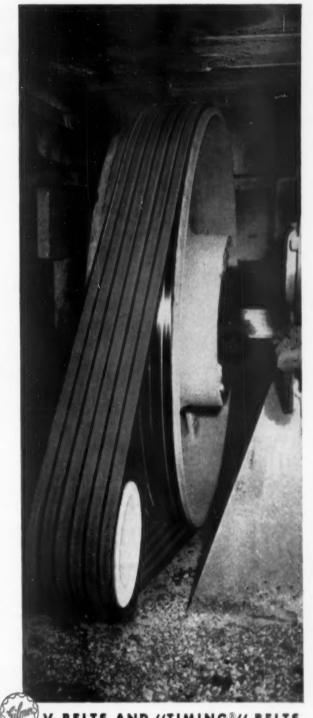
Here's the V-belt that transmits up to 40% more power than standard V-belts...has longer flex life... absorbs greater shock loads...has more stretch-resistance...is practically unaffected by changes in humidity.

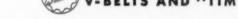
New multiple-belt drives designed to use this Super Service V-belt permit savings in both drive cost and space, since smaller sheaves, fewer belts and less maintenance are required. These narrower drives also make possible reduction of shaft overhang, and the amount of overhung weight.

Use on existing multiple drives is especially recommended where it is desirable to raise the capacity or safety factor, or to increase ability to absorb shock loads, without enlarging the drive.

A worthy successor to the famous black-jacketed Super Service V-Belt, the *new* belt's distinctive red color insures against confusing it with other V-belts, guards against mixing with other types on the same drive, and serves as a guide in storing and reordering. The new "Dacron" tensile section is cushioned on bottom rubber especially developed to compress and release under higher tension with minimum heat generation.

The new Gilmer Super Service V-Belt is made in all standard multiple-drive sizes. Order from your nearby NYB&P-Gilmer Distributor. Consult your classified telephone directory for his name.





*Du Pont's polyester fiber



NYB&P INDUSTRIAL RUBBER PRODUCTS

NEW YORK BELTING & PACKING CO. 1 Market St., Passaic, N. J.

America's Oldest Manufacturer of Industrial Rubber Products

For More Information Circle No. 1063 on Inquiry Card-Page 17

production seating Series 8150 Adjustable Posture Chair in use above

- Increases Production-Efficiency
- Improves Employee Morale
- Reduces Errors Caused by Fatigue

PRODUCTION SEATING is seating adapted to the "use requirements" of the individual at a particular operation.

The Toledo Metal Furniture Company has created the only complete line of comfortable, safe, rugged PRODUCTION SEATING. A wide range of features from which to select the correct chair for. your particular operation has been developed from Toledo's 60 years' experience.

FEATURES . . . HEIGHTS (14" to 35"): Quick-adjustable—Adjustable—Fixed • FEET: 5 different kinds • SEATS: Swivel — Non-Swivel — Steel — Wood — Cushioned • BACKREST: Straight—Springback— Adjustable.

FREEL Production Seating Bulletin! THE TOLEDO METAL FURNITURE COMPANY 1060 South Hastings Street Toledo 7, Ohio Send brochure on TOLEDO Production Seating to: NAME.... (Attach this coupon to company letterhead) THE TOLEDO METAL FURNITURE COMPANY

For More Information Circle No. 1064 on Inquiry Card-Page 17

Lubricant Ends Need for Costly Pump Repairs

Sulphuric acid was causing trouble with vacuum pumps at a large eastern chemical plant. Valve seats, cylinder walls and pistons had to be replaced continually at a cost of hundreds of dollars per month. Ineffective lubricants boosted costs still higher. Keystone 2K-6 lubricant put a stop to constant replacements. Eighteen months after the first application, no parts had to be replaced, and actual lubrication cost had been reduced by 40%.

Circle No. 617 on Inquiry Card-Page 17

Time-Keeping Centralized with Communications System

Utilizing a Stromberg-Carlson custom - engineered communications system a leading transformer manufacturer has replaced individual department time-keeping in his two plants with a centralized time-keeping system. Two time clerks receive employe time reports at the central control cabinets from remote combination talk-listen loudspeakers located throughout the plant. The two clerks keep a complete running tabulation of job times for each work day. Formerly, several days elapsed before final tabulation of these time figures, and errors in an employee's work records were frequent.

Circle No. 618 on Inquiry Card-Page 17

Synthetic Coolant Produces **Better Metal Finishes**

A large machine shop on the West coast, which performs exacting operations on a variety of metals, after experimenting with several types of coolants, is now using a synthetic coolant, made by Daubert Chemical Co. for all operations, even grinding. Trade named "Cool-Speed," it is used with a water vehicle to produce a transparent solution which has excellent lubricity, better cooling and produces better finishes on cast iron, brass, aluminum and the various steels.

Circle No. G19 on Inquiry Card-Page 17

Other Series



"316" Stainless Steel Valve

also brings you all the proven Rockwood features, too

You get more. But you give up nothing. That's the story of the New Rockwood Ball Valve in Type"316" Stainless Steel with Teflon Seals and

And it's "yes" to all the other features that have given Rockwood Ball Valves their good name. You don't get galling . . . you do get full

round flow. Low pressure sealing, easy operation, stem repacking without removal from the line - all these are yours with Rockwood.

The New Rockwood Ball Valve comes with various types of seats, remote air-operation of wanted sizes and with adjustable stem with Teflon packing, screwed (36" to 2") ends. Send for specifications. Distributors in all principal industrial areas. Rockwood Sprinkler Company, Worcester 5, Massachusetts.



ROCKWOOD SPRINKLER CO.

1244 Harlow Street

Worcester 5, Massachusetts

Please send me folder which includes specifications on the NEW ROCKWOOD "316" STAINLESS STEEL BALL VALVE.

Title ...

Company

Street

City Zone ... State

ROCKWOOD BALL VALVES



Another great new productOakite

a new conversion coating for aluminum and zinc

- Assures better paint adhesion
- Increases corrosion resistance

Out of the Oakite research laboratories comes this new development — the Oakite ChromiCoat Process — that puts a conversion coating on aluminum and zinc products.

More than just a coating, Oakite ChromiCoat Process chemically builds a base — microscopically thin, uniform, goldencolored — that is an integral part of the metal surface. On this base you get excellent paint adhesion, reduced chipping and flaking. And if chipping does occur, corrosion is confined to the exposed spot, with no eating away under the paint.

Oakite ChromiCoat Process offers unusual economy. Dilute water solutions, 2-3 oz/gal., give you a low make-up cost. Easy control, with no pH problem, reduces upkeep and operating costs. You can use dip tank method or pressure-spray washing machine.

Oakite ChromiCoat Process fully meets specification No. MIL-C-5541.

Oakite ChromiCoat Process is another example of how Oakite research seeks constantly to meet the special needs for cleaning and processing in every industry. And nearby is your local Oakite Technical Service Representative to help you make the most efficient and economical use of Oakite materials. Call him.

For more details on Oakite ChromiCoat Process, write for Bulletin F9881 to Oakite Products, Inc., 54 Rector Street, New York 6, N.Y.



Technical Service Representatives in Principal Cities of U. S. and Canada For More Information Circle No. 1065 on Inquiry Card—Page 17

No Maintenance on Impulse Steam Traps for 2 Years

Yarway impulse steam traps have been installed for the past two years on outdoor sulphur melting coils of a midwest plant of the International Minerals & Chemical Corp. Despite the hard service to which these units are subjected there has been no maintenance needed since they were installed, with not even a spare part added. One advantage of these traps is that they have only one moving part-a small stainless steel valve. It floats on the condensate load and discharges condensate as it forms, keeping heat at the peak.

Circle No. 620 on Inquiry Card-Page 17

Gas Engines Save \$6,000 in One Air Conditioning Season

The Ohio Fuel Gas Co., Columbus, Ohio, is using two Le Roi gas engines to power two 100-ton reciprocating compressors used in air conditioning its office building. The cost of the engineoriginated energy is one-half that of prevailing electrical power costs for the area. This amounts to \$1.50 per hour savings for the 4,000 hours that it is necessary to run the engines during the air conditioning season. This means a total savings of \$6,000 on energy alone.

Circle No. 621 on Inquiry Card-Page 17

Wrought Iron Outlasts Creosoted Timber

The Chicago, South Shore and South Bend Railroad, along with other major railroads, is replacing creosoted timber ties on bridge tracks with wrought iron tie spacer bars, manufactured by the A. M. Byers Co. The railroad came to this decision because the wrought iron bars provide maximum durability and dependability during severe corrosive attack. They have a high resistance to corrosive brine and other drippings from refrigerator and other cars passing over the tracks. Also, they eliminate bridge deck fire hazards.

Circle No. 622 on Inquiry Card-Page 17



VIRCO #401

Tubular steel frame with heavy duty natural masonite top. 35" square spacious surface area makes this table ideally suitable for games, dining or general utility. Automatic leg lock clicks into place when legs are unfolded insuring sturdy, wobblefree rigidity. This sturdy well-constructed table will last for years and is especially popular with clubs and fraternal groups.



At last, a well-designed and sturdily constructed folding tablet arm chair that fills many uses—lecture halls, sales meetings, etc. Has a large writing or working surface area of Vircolite mar and stain resistant plastic. Handsome matching plywood seat—folds easily, stacks compactly. Baked-on enamel finish available in suntan, aqua-green, light blue, coral, gray or black. Virco's exclusive "can't tip" safety-tested construction.

versatility, PLUS quality construction



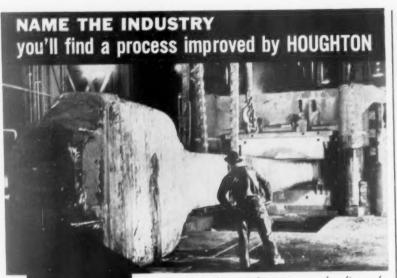
One piece, 22 gauge stamped steel, formfitted seat with edges curled for added rigidity and smoothness. Available in suntan, aqua-green, blue, coral, black or gray finish. IRCO
MANUFACTURING CORPORATION

P.O. Box 44846, Station H, Los Angeles

Mfg. plants - Los Angeles, Calif. and Conway, Arkansas

Warehouses in principal cities

"Maker of America's Finest Institutional Folding Furniture"



ce

...one

hydraulic

purchase

Here's how to know when you need a fire-safe hydraulic fluid.

Consider the nearness of any fire hazard—welding operations, hot metal, furnaces, open flames, ovens, etc. Then consider the pressures involved, how far fluid could spray from a break. It could be 50-75 feet or more. If hazards fall within that distance, you need a fire-safe hydraulic fluid.

Here's the solution.

Complete fire protection and top hydraulic efficiency are assured with these superior Houghton products.

Houghto-Safe 600 series—for 85% of all hydraulic applications.

Houghto-Safe 1,000 series—for special high-temperature and heavy-duty lubrication requirements.

Ask the Houghton Man for details—or write E. F. Houghton & Co., 303 West Lehigh Ave., Philadelphia 33, Pa.



HOUGHTO-SAFE

... a product of

For More Information Circle No. 1069 on Inquiry Card-Page 17

Truck Radios Boost Driver Productivity

More than 100 trucks of the Red Star Express Lines at North Bergen, N.J., have been equipped with General Electric's two-way radio. This permits "terminal-to-truck" control and reduces time consuming delays. It has enabled the fleet to step up its number of pickups per hour per unit with a most substantial increase in the "pounds per manhour" ratio.

Circle No. 623 on Inquiry Card-Page 17

Fre-Eze Solves Rust Problem

Curley Construction Co., Red Bank, N.J., had to leave a trailer used for carting a bulldozer outside during the winter months. In the spring, when they wanted to bring the trailer boom down to truck level, they found the boom had rusted fast. Despite hammering and the efforts of three men the boom couldn't be loosened. Then they tried spraying the boom's swivel joint with Fre-Eze, a penetrant made by Fre-Eze Chemical Corp., Atlanta, Ga. Almost immediately the rusted boom joint was working freely.

Circle No. 624 on Inquiry Card-Page 17

Labeling Tape Speeds up Operations for Univac User

A computing center in the east which has had a Univac machine installed found that its operations could be still further speeded. It is making use of Labelon "write-on-it" tape for color coding and identification of reels of metal magnetic tape used for the recording of data. The tape is easily applied to the reels and quickly written on with pencil, pen or stylus.

Circle No. 625 on Inquiry Card-Page 17

FOR MORE INFORMATION
PLEASE USE
INQUIRY CARD—PAGE 17

Grinding Wheel Prolongs Life Of Tools

A mid-West aircraft manufacturing plant uses a large quantity of difficult-to-machine high alloy steels. The company tested out several wheels for satisfactorily thinning the point of tools used in drilling these steels when they wear down. It now uses only grinding wheels made by Electro Refractories & Abrasives Corp. Their new type wheels give the drill a cooler cut and better finish to prolong the tool's life and maintain a sharper finish.

Circle No. 626 on Inquiry Card-Page 17

Compressor Tractor Saves \$17,000 on First Job

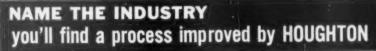
Use of Schramm Pneumatractor equipped with a Pneumajack to drill holes in 5000 manhole covers saved Philadelphia Electric Co. \$16,900. The job was made necessary when Philadelphia Electric took over an unused duct system from another company For easy removal of manhole covers, Philadelphia had standardized on covers with two holes. The manhole covers used by the other company were without holes. Estimate by a contractor for doing the drilling job was \$23,000 and it would take 2 years. With the Schramm Pneumatractor, Philadelphia Electric completed the job in one year.

Circle No. 627 on Inquiry Card-Page 17

Self-Leveling Isolators Permit Fast Installation

A manufacturer of earth moving machinery bought a new Barber Colman automatic hobbing machine. It was precision-hobbing helical gears at a production rate of 100 per hour almost as soon as it arrived on the plant floor. It was installed on four Barry mounts and leveled in minutes. Without these self-leveling isolators, this horizontal hobbing machine would have required long tedious shimming to achieve the degree of levelness on which the machine's accuracy depends.

Circle No. 628 on Inquiry Card-Page 17





Proper cooling and lubrication are vital factors of machine tool efficiency. You get them with Houghton's chemically conceived cutting concentrates—headed by Antisep All-Purpose Base—as with no other products on the market today.

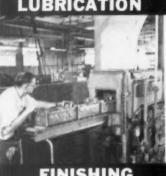
MACHINING



The know-how of the Houghton scientists who pioneered the salt bath method of heat treating is now available to you in a full range of modern products . . . Perliton Carburizing Salts, salt baths for heating, tempering and quenching, and Mar-Temp and Houghto-Quench Oils.



It is amazing how quickly longstanding lubrication problems can disappear—along with their high cost—when you properly apply Houghton lubricants. There's a complete range of oils, greases and special-purpose lubricants that give superior service in problem spots, one-of-a-kind applications, or across the board.



Houghton Cold Cleaners give you steady production, fire resistance, elimination of heating costs. Houghto-Black will do an outstanding job of blackening, easily and evenly without changing dimensions of work. Houghton's Rust Veto compounds will give you sure rust prevention on finished parts, stored material—indoors or out.

... products of



For More Information Circle No. 1070 on Inquiry Card-Page 17

Tough as they come! Plastic-Coated Gloves



Work 'gloves just don't come any tougher than HOOD'S Plastic-coated work gloves. They're resistant to acids, alkalies, oils and abrasion. They're flexible and odorless, too, thanks to a special plasticizing process. Curved fingers and winged thumb provide a natural, comfortable fit. Canton flannel lining.

Also available in palm coated style No. PV-94. Write today for 1957 catalog.

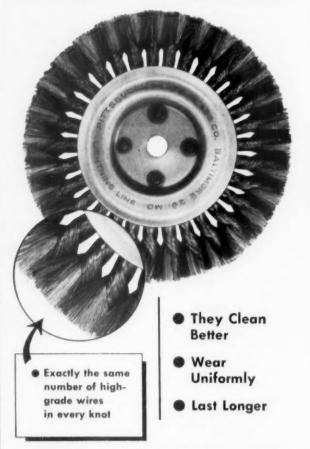
HOOD RUBBER CO.,

a division of the B. F. Goodrich Company WATERTOWN, MASS.

RUBBER - NEOPRENE - PLASTIC COATED INDUSTRIAL GLOVES

For More Information Circle No. 1071 on Inquiry Card-Page 17

Pittsburgh's Knotted **Brushing Wheels** are better balanced!



Pittsburgh Knot Type brushing wheels are perfect for cleaning welds, removing scale or rubber, and cleaning parts where penetration brushing is required. They wear uniformly and cause less vibration because they're better balanced. The special wire used is the fastest cutting, with the longest life, that can be made.

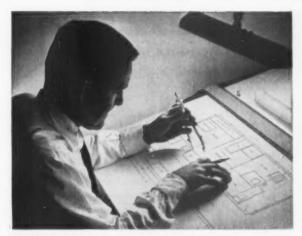
• We have been engineering, designing and building brushes for a wide variety of industries for many years. Our long experience can save you time and money. Write Pittsburgh Plate Glass Company, Brush Division, Dept. P-57, 3221 Frederick Avenue, Baltimore 29, Maryland.

PITTSBURGH



For More Information Circle No. 1072 on Inquiry Card—Page 17

PURCHASING



ARCHITECT: "For an industrial building that's low in cost and yet a credit to my client—this is the material!"



BUILDER: "K&M Corrugated Asbestos can be put up fast, and with regular carpenter's tools."



FIRE UNDERWRITER: "Easy to approve, and often for minimum rates, since it won't burn."



MAINTENANCE ENGINEER: "Practically no upkeep—it won't rust or rot, and needs no protective paint."

"THEY ALL SAID K&M CORRUGATED ASBESTOS!"



"I listened to the testimony above and then decided on K&M Corrugated Asbestos for my new plant addition, at rock-bottom cost."

This wise owner learned that K&M Corrugated, for roof and curtain walls, is practically indestructible—it's made of asbestos fiber and portland cement, compressed under tremendous pressure. It fits 101 industrial applications attractively, without the cost of protective paint.

Tell your architect and/or builder you want K&M Corrugated Asbestos Roofing and Siding, to get low first cost, inexpensive construction, long life with little maintenance. For further information, write direct to us.



KEASBEY & MATTISON

Company • Ambler • Pennsylvania

CHARCO GLOVES

Reduce Hand Hazards and Production Costs

THEY WILL PROVE THIS IN YOUR PLANT BY EXTRA LONG LIFE JOB EFFICIENCY AND RELIABLE PROTECTION FOR YOUR WORKERS





CHARCO

NEO-SOL

ALL NEOPRENE RUBBER GLOVES

Dependable hand protection from most industrial chemicals and solvents. Offers excellent all round chemical and snag resistance.

HY-SOL

SPECIAL PURPOSE BUNA N RUBBER GLOVES

Premium protection against, and outstanding resistance to, organic solvents and industrial chemicals. Extra flexibility and comfort.

CHARCO offers a complete range of hand protection!
Order the glave best suited to your particular job from
CHARCO'S versatile line—"HY-SQL", "NEO-SQL", or
Natural Rubber Glaves.

AVAILABLE WITH EITHER "GRIP-SAF" NON-SLIP HAND OR SMOOTH FINISH

Complete Range of Sizes, Lengths, and Thicknesses

--- FREE write today

today GLOVE CATALOG

Contains easy to use chemical reference tables and glove selector guide. Our efficient laboratory staff is eager to help solve your present protection problems.

JOBBER INQUIRIES INVITED

CHARLESTON

RUBBER COMPANY

10 Stark Industrial Park
CHARLESTON, SOUTH CAROLINA



For More Information Circle No. 1074 on Inquiry Card—Page 17

For all-'round deodorizing...

ROUNDS
Fragrant, laborless
deodorant discs for urinals,
bowls, garbage pails, lockers, closets

Deodoroma ROUNDS cost in use averages only a fraction of one cent a day. Rounds are formed under 70,000 pounds pressure: are dense and durable. Fragrance is locked in: lasts until the last particle has vaporized—there's no harsh "moth cake odor." Packed eight to the telescoping box—each Round sealed airtight—easy-to-shape Holzit wire holder in every box. For literature write to The C. B. Dolge Company, Westport, Conn.

For free sanitary survey of your premises ask your Dolge service man



For More Information Circle No. 1059 on Inquiry Card-Page 17



Now you can custom design your own layout with Equipto modern-flow Benches. They can be easily arranged into one continuous streamlined assembly.

Many types and styles of drawers, drawer pedestals, cabinet pedestals, sliding doors, aerial shelves and accessories are available for Equipto Benches.

All Equipto modern-flow Benches are available with a choice of four tops...12 gauge steel top, masonite covered steel top, resinwood or laminated maple top.

Send for big 16 page catalog No. 200 illustrating and describing this outstanding line of top quality benches.



Division of Aurora Equipment Co. 746 Prairie Avenue Aurora, Illinois

Steel Shelving . . . Parts Bins Drawer Units . . . Lockers . . . Carts . . . Work Benches

For Mare Information Circle No. 1076 on Inquiry Card-Page 17

Heat Pumps Adequate in Severe Cold Snap

The world's largest installation of packaged heat pumps is in operation at the new plant of a manufacturer of air conditioners in the East. The installation of the water-to-air heat pumps supplied more than adequate heat during a recent six-degree cold snap, even though it operated at only 60% of capacity. There were no slow-downs due to the severe cold which closed a number of factories in the same area.

Circle No. 629 on Inquiry Card-Page 17

Corrosion-Resistant PVC Piping Carries Deionized Water

Piping of unplasticized polyvinyl chloride is used by the National Cash Register Co., Dayton, Ohio to carry water from which impurities have been removed by the use of ion exchange resins. Pure water is part of the company's rigid quality control to prevent discoloration of paper. PVC piping is inert and will not contaminate the deionized water. Injection molded by Tube Turns Plastics, Inc., the PVC piping is easy to install.

Circle No. 630 on Inquiry Cord-Page 17

Maintenance Costs Drop 90% With Electric Fork Trucks

Replacement of gasoline-powered fork trucks by electric trucks, powered with Exide Ironclad batteries, resulted in a saving of 90 percent on maintenance costs for the Kroger Co., St. Louis Used 16 to 20 hours per day, the cost of repair parts on the gasoline fork trucks has been averaging less than \$20 per day. Maintenance time, including lubrication and battery care, amounts to approximately one-half hour per day per truck-one-tenth the cost required by the gasoline-powered trucks previously used. The company says the cost operating and maintaining batteries totals only a few cents a day.

Circle No. 631 on Inquiry Card-Page 17



You wouldn't know they're safety spectacles until they're needed!

NOW—WILLSON DESIGN provides this new concept of style combined with protection—ideal for daylong wear!

You'll see a dramatic difference in this protective eyewear that's styled for greatest worker acceptance! New wide-vision lenses. New popular plastic frame styles. New designs that add distinctiveness to safety spectacles at last!

Workers will wear them willingly—with the Willson "Super-Tough" lenses prescription ground, if desired—because these new styles are as handsome as frames can be!

A full range of eye, bridge and temple sizes have been developed into attractive eyewear by the Willson Research Center. Ask your Willson distributor to show you the WF line soon.



new wide-vision frame shape in fleshcolor butyrate, spatula or half plastichalf cable temples



demi-amber wide-vision butyrate frame; matching spatula temples



popular Willson Bronze, wide-vision frame; spatula or half plastic-half cable temples

Over 300 safety products carry





wide vision lenses, spatula temples in new half-frame design (demi-amber overlay on upper half of crystal butyrate frame)

this world-famous trademark

WILLSON

PRODUCTS DIVISION RAY-O-VAC COMPANY

221 Washington Street, Reading, Pennsylvania For More Information Circle No. 1077 on Inquiry Card—Page 17

POWERFUL NEW PLUNGER CLEARS CLOGGED TOILETS IN A JIFFY!



- Accordion-action design to flex at any angle
- Double-size cup blasts double pressure, aimed directly at obstruction
- Tapered suction-grooved tail gives

Clear messy, stuffed toilets Cut maintenance costs with

TOILAFL

Toilet ALL-ANGLE Plunger

Ordinary plungers don't seat properly. They permit compressed air and water to splash back. Thus you not only have a mess, but you lose the very pressure you need to clear the obstruction.

With "TOILAFLEX", expressly designed for toilets, no air or water can escape. The full pressure plows through the clogging mass and swishes it down.

Order a "TOILAFLEX" for your own home too. Positive insurance against stuffed toilet.

\$265 Fully Guaranteed

Order from your Supplier of Hardware or Janitor Supplies

THE STEVENS-BURT CO., NEW BRUNSWICK, N. J.

A Division of The Water Master Company

For More Information Circle No. 1058 on Inquiry Card-Page 17

"Write-On" Tape Saves Time for Laboratory Identification

One of the country's leading chemical companies is finding Labelon "write-on-it" tape the perfect answer to identifying bottles of material in its research laboratory. Previously, technicians used gummed labels, but found them difficult to write on and to remove from bottles. They find that Labelon, being selfsticking and easily written with typewriter, pencil, pen or stylus, is superior to gummed labels.

Circle No. 632 on Inquiry Card-Page 17

V-Belt Cost Cut 45%

Installation of Compass-V-Steel belts on an asphalt mixer drive, replacing conventional belts which had an average belt life of from 5 to 8 weeks, eliminated belt maintenance and replacement costs for 6 months. Changeover reduced belt costs alone by 45%. Compass-V-Steel belts are manufactured by Goodyear Tire & Rubber Co.

Circle No. 633 on Inquiry Card-Page 17

CLASSIFIED DEPARTMENT

Contract Work

Used Equipment For Sale

Employment Opportunities

Send orders to: CLASSIFIED DEPARTMENT

PURCHASING

205 East 42nd Street, New York 17, New York

RATES

Undisplayed (set solid) 90¢ line Positions Wanted 45¢ line

Displayed \$8.50 inch

REQUIREMENTS

Undisplayed want ad style), minimum charge 4 lines, prepaid. Figure forty-four letter spaces (five average words) to a line. Add one line for box number address; replies forwarded with-

Discount of 10% for twelve consecutive displayed insertions. Forms close 15th of month preceding date of publication.

Position Wanted

Metallurgist, B. S. degree, age 31, 6 years manufacturing and engineering experience with accessories, farm equipment and aircraft manufacturers, desires to become associated with PURCHASING DEPT. of progressive manufacturer. Education, experiences and interests lie with material selection and its processing, with emphasis on steel application, heat treatment, and electroplating and other surface protection. Write Box 1521, Purchasing, 205 East 42nd St., New York 17, N.Y.

PURCHASING AGENT: 12 years experience in metal working and fabricating industry, purchasing stainless and carbon steel, castings, miscellaneous parts, MRO supplies, etc. Interested only in permanent connection with well estab-lished company in South Central or South-eastern location. Write Box 1522, Purchasing, 205 E. 42nd St., New York 17, N.Y.

LP GAS INSTALLATIONS and ANHYDROUS AMMONIA PLANTS Designed & Installed

"There's No Substitute For Experience"
PEACOCK CORPORATION Paul E. Poacock, Jr., Pres. Box 268, Westfield, N. J.

WANTED-Salesman for a large nationally known screw manufacturer. Preferably a col lege graduate. Knowledge of fasteners and applications and sales experience with or thru industrial distributors desirable. Must be willing to travel. Straight salary plus expenses. All fringe benefits. Openings in Atlanta, Cincinnati, Houston and Loe Angeles. Excellent opportunity, write give full details. Write Box 1517, Purchasing, 205 E. 42nd St., New York 17, N. Y.

PURCHASING AGENT

Well known and respected mid-western company seeks purchasing agent with raw material and equipment experience in the plastics industry. Chemical Engineering degree preferred.

This is an unusual opportunity. Please send complete resume and state salary desired. Box #1520, Purchasing, 205 East 42nd St., New York 17, N. Y.

ALWORTH

A complete line of Walworth screwed and solvent

weld socket type fittings are available in sizes

from 1/2" to 4" and include 45° and 90° Ells and

flanges . . . plugs . . . bushings

90° SOLVENT WELD-SOCKET TYPE ELBOW

90° SCREWED ELBOW

FOR THE LASTING PROTECTION OF PLASTIC PIPING SYSTEMS....

Specify WALWORTH

Valves and Fittings!

Walworth plastic valves and fittings are made of non-aging, non-corrosive and non-toxic unplasticized rigid polyvinyl chloride (PVC). These products are highly resistant to chemical attack and offer the advantages of immunity to galvanic corrosion and high impact strength at temperatures as high as 150°F. Durable and light, Walworth PVC valves and fittings are simple to install, easy to maintain (no painting), and add a smooth, clean appearance to your piping system.

Walworth PVC Y-Globe Valves are designed to regulate the flow of alkalies, acids, and similar corrosive fluids. Walworth PVC Diaphragm Valves* are commonly used in systems handling corrosive fluids, especially those containing suspended materials, and can be furnished with diaphragms suited to your application.

*Hills - McCanna (Saunders Patent)

SEND FOR THIS BOOKLET. It describes mechanical and thermal properties, working pressures, sizes and dimensions, application and assembly data for the complete line of Walworth PVC Valves and Fittings. Please use company letterhead.

straight and reducing couplings . . . screwed and flanged unions . . . caps . . . nipples



60 East 42nd Street, New York 17, New York



SUBSIDIARIES: TO ALLOY STEEL PRODUCTS CO. CONOFLOW CORPORATION GO GROVE VALVE & REGULATOR CO. SW SOUTHWEST FABRICATING & WELDING CO., INC. (M) M & H VALVE & FITTINGS CO. (WALWORTH COMPANY OF CANADA, LTD.





you be the judge-



HERE ARE THE FACTS!!

Wiping Rags Can Be Used Over and Over Again on a Re-wash Basis at the Lowest Cost per Use.

Cost of Using Reclaimed Specification Rags on Rewash Basis

1 lb. of specification cloths can be bought for 22¢ These cloths can be rewashed 5 times at a cost of 9¢ per lb. (based on weight after washing) for Cost for 6 usages ... Cost per lb. usage $(67 \div 6) = 11 \ 1/6c$.

Cost of Using Reclaimed Mill Ends on Rewash Basis 1 lb. of specification mill ends can be bought for ... 40¢ Mill ends can be rewashed 10 times at a cost of 9¢ for each rewash (based on weight after washing)

The Sanitary Institute of America consists of over one hundred members, pledged to maintain a high standard of ethics. For a list of members or Institute Specifications write The Sanitary Institute of America, 173 W. Madison Street, Chicago 2, Illinois.

173 WEST MADISON STREET

CHICAGO 2, ILLINOIS



For More Information Circle No. 1079 on Inquiry Card-Page 17



Uncover all your costs

The famous SBS-60 upside-down hand picture first appeared about a year ago. It dramatically illustrates how SBS-60 Cream Deodorant Soap is almost impossible to waste . . . and why it has solved literally thousands of soap "headaches" in hundreds of nationally known organizations.

What is your soap "headache":

- soap powder spilled all over your washrooms?
- bar soap wastefully dissolving on the shower room floor? liquid soap dispensers either dripping or all clogged up? constant work keeping dispensers filled and in order?
- complaints about your soap from both men and women?
 whatever your soap "headache", SBS-60 can help.

Write and we'll send complete information that tells you just how SBS-60 Cream Deodorant Soap "cures" most of today's soap "headaches". Write us today! We'll rush the details to you.

VA* on SBS-60 reveals hidden savings!

Write Dopt. 57-83



the washword of industry



CANADIAN SUBSIDIARY: Chemical By-Pi Lid., 23 Rocine Road, Readele, Ontorio, C



SBS research developed SBS-60 after years of study. This new type of soap is proclaimed the successor to liquid and bar soaps.

"Valve Analysis

For More Information Circle No. 1080 on Inquiry Card-Page 17

Electronic Detectors Used to Spot Hot Boxes

Chesapeake & Ohio Railway is experimenting with an infra-red "Hot Box Detective" to spot overheated journal boxes on railroad cars. Developed by Servo Corp. of America, the detector units are placed outside and parallel to the rails with infra-red lenses angled up at 45 degrees to the axle journals of the moving railroad cars. The equipment records on tape the temperature of every journal box regardless of the train's speed. When a hot box is located, the deflector flashes a warning to a signal mechanism and the train is stopped.

Circle No. 634 on Inquiry Card-Page 17

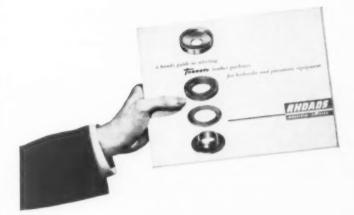
Hot Spray Lowers Reject Rate by 65%



Ben Hur Manufacturing Company was convinced that the finish department could equal the scientific control of punching, cutting and assembly operations in their manufacture of home freezer cabinets. The answer came with hot spray and a reduction of 65% in the number of rejects. Viscosity control was one of Ben Hur's needs. In cold spray, the viscosity was changed by adding thinners. Too much or too little meant poor workmanship. Hot spray solved this problem. With hot spray, temperature and viscosity are constant.

Circle No. 635 on Inquiry Card-Page 17

Every Purchasing Agent Should Have This Free Booklet



a handy guide in selecting leather packings for hydraulic and pneumatic equipment

This colorfully illustrated, clearly written eight page booklet tells you just where to use and how to select U, Vee, Cup or Flange Packings for hydraulic and pneumatic applications. J.I.C. sizes, standard nomenclature, dimensions, etc. enable you to order Packings quickly, easily and economically. Write on your business letterhead, to

J. E. Rhoads and Sons, 2100 West 11th St., Wilmington 99, Del.

WILMINGTON NEW YORK CHICAGO

ATLANTA



For More Information Circle No. 1081 on Inquiry Card-Page 17

letters

DELIGHTED

We, here at Emory University, are delighted with the nice display you gave our purchasing manual and appreciate your mentioning this publication in such

your mentioning this publication in such a nice way, (April, page 105)

I started receiving several letters requesting copies of the Manual on Purchasing Policies and Procedures about a week ago.

I may point out that the document was written primarily for the benefit of our instructional, research, and administrative staffs and it has been extremely beneficial to the institution. It has saved trouble for the purchasing department and certainly has saved trouble for these people also.

PURCHASING Magazine has improved year by year, although many years ago I thought it had reached a limit of excellence

All purchasing agents, I am sure, are quite grateful to you and your staff for the splendid contribution you are making, and to the careful selection and presentation of material from sources that would be unavailable to most of us except for the time, trouble, and expense which your organization goes to in digging up the inormation.

> Charles W. Hayes Director of Purchases Emory University Georgia

 And bouquets to you too, sir. We are more than pleased to be able to pass on to our readers, items which we feel are new and notable.

with any others you think might assist us, we would be most grateful to have copies.
P. L. Parrish

Assistant Manager Virginia-Carolina Chemical Corp. Richmond, Virginia

· A list of some of the companies with outstanding welcome booklets is now on its way to Mr. Parrish.

EDUCATIONAL

To me, the greatest value of PURCHAS-ING Magazine is its educational aspect. The Editorial Index for 1956 crystalizes this point of view very neatly

Thanks for the great contribution you

are making to better the status of the purchasing profession.

A. E. Altherr

Purchasing Agent

Pulp and Paper Research Institute Montreal, Canada

HIS I.Q. IS UP

Thanks to your excellent publication, my purchasing I.Q. is constantly increas-

Please send me the previous articles covering the subject of catalog files in a purchasing department. They would be of considerable help in the organization of my own small office.

Kurt J. Baum Purchasing Agent Labelon Tape Co., Inc. Rochester, New York

WELCOME BOOKLET

We are very much interested in developing a welcome booklet such as you describe in the article by Ned Kellogg, page 89, February issue.

Our advertising department is cooperating with us in working up our booklet and they have asked if we would secure copies of this type of publication which you referred to in your article. If you have copies of these publications together

 Articles from our permanent files have been sent to Mr. Baum for his use. Purchasing has a wealth of informative material on all phases of purchasing in its permanent files which may be borrowed by readers for special purposes.

UNUSUAL CHALLENGE

I have read your March issue with considerable interest and would like to compliment you for an outstanding job on this particular issue.

The article entitled "Are You Ready for the Top Purchasing Job?" offered an unusual challenge to every buyer as well as to all purchasing executives. Would you kindly forward two reprints of this article?

I very much appreciate the information and challenges which are continually presented in this publication and offer en-couragement in your future efforts toward that end.

W. M. McBee Purchasing Agent Beckman Helipot Corp. Newport Beach, Calif.

EDITORIAL INDEX

Your PURCHASING editorial index for 1956 received recently was of such interest and so beneficial for our library that I would like to have a few more copies for my buyers ready reference.

H. Stafford Kellam

President National Association of Purchasing Agents New York, New York

REFLECTS CURRENT THINKING

Your recent article on "Success in Purchasing" in the March 1957 edition is an excellent and informative presentation of current thinking in this field. If available, I would appreciate receiving a copy of this series or related articles

Your cooperation in this matter will be greatly appreciated.

R. L. Bisset Ass't to Purchasing Agent Corning Glass Works Corning, New York

• In spite of the very heavy de-mand for this series of articles we have a few left which are being sent to Mr. Bisset.

For More Information Circle No. 1082 on Inquiry Card—Page 17→ PURCHASING A new line of Standard Oil greases

RYKONI

GREASE

Major breakthrough in grease technology results in development of new thickening agent. New grease has greater high temperature stability, superior multipurpose qualities, improved lubricating properties.

Standard Oil instituted a grease research and development project several years ago. The result of this work is the line of RYKON Greases, which contain a unique new non-soap, organic thickening agent.

RYKON Greases surpass in stability and performance the best greases made up to this time. They bring to industry new opportunities for improved machine performance. They greatly reduce the maintenance and grease handling problems encountered in industry.

RYKON Grease properties

RYKON Greases are smooth, buttery-textured greases, made from the finest quality, solvent-extracted oil. Their thickening agent is a Standard Oil exclusive. RYKON Greases have these high-quality characteristics:

- High temperature stability—Better heat stability than any other petroleum oil grease. ASTM dropping point of 480°F. Maintain consistency in service at high temperatures.
- Mechanically stable Maintain consistency even under severe mechanical working in service.
- Chemically stable—Inhibit oxidation. Oil and thickening agent in combination possess extremely good chemical stability.

Check Chart Of RYKON Greases

Regular Line	Grade Consistency
RYKON Grease No. O	0
RYKON Grease No. 1	1
RYKON Grease No. 2	2
RYKON Grease No. 3	3
Heavy Duty Line	
RYKON Grease No. O E. P	. 0
RYKON Grease No. 1 E. P	. 1
RYKON Grease No. 2 E. P	. 2

- Wide temperature range—Lubricate at high and low temperatures. Extended range of application thus obtained makes RYKON Greases truly multi-purpose.
- Water resistance—Do not lose consistency in presence of water. Highly resistant to water washout.
- Oil separation—Minimum bleeding of oil in service and storage.
- Anti-rusting Exceptional natural rust preventive characteristics.

With RYKON Greases, lubrication can become simple, foolproof and less expensive—much less expensive, perhaps, than a single shut down caused by equipment failure due to the use of the wrong type of grease or the use of an "economy" grease lubricant.

RYKON Greases come in four Regular and three Heavy-Duty grades. Thus there is a RYKON Grease to take care of every grease lubrication job. Using RYKON Greases plant-wide can reduce your grease storage requirements, simplify lubrication maintenance training, cut down record keeping, save on dispensing equipment and reduce investment in grease inventories.

Get more facts about RYKON Greases. Call your nearby Standard Oil industrial lubrication specialist in any of the 15 Midwest or Rocky Mountain states. Or write Standard Oil Company, 910 South Michigan Avenue, Chicago 80, Illinois.



STANDARD OIL COMPANY (Indiana)

advertisers

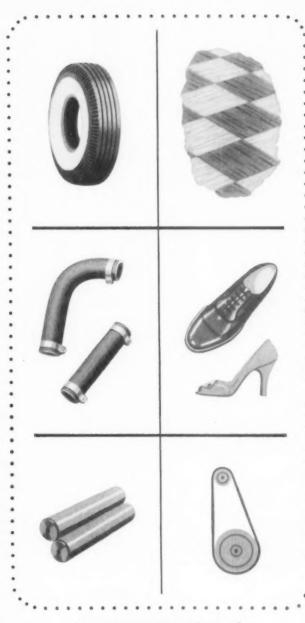
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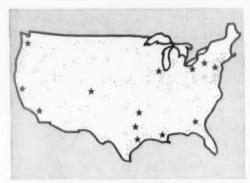
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